

Wildlife Hazard Assessment of Panama Pacifico Airport

Dr. Nicholas Carter
CARSAMPAF



Significant Risk Factor for Potential Bird Strikes







Numerous (Black) Vultures



Average Black Vultures = 2.0 kg



**Modern engines rated for 1 kg
bird ingestion**



Single bird – kestrel (115 gm)



Likely attracted to coastal village and airport thermals



Counted 450 vultures/2 hours
Less than 1 km
Takeoff (full power)







**In the US, hawks and vultures represent 93.4 %
of down-time for civilian aircraft bird strikes.
(\$72 million over 22 years)**

**64% of damaging strikes to US military
aircraft.**

**1.3% of all reported strikes –
6.7% of all damage**

**54% of all vulture strikes cause damage
33% have negative effect on flight =
87% of vulture strikes have significant effect**

Table 19. Ranking of hazard level of 108 bird and 12 terrestrial mammal species with 30 or more reported strikes with civil aircraft in USA, 1990-2011 (Table 17), based on a composite of the percent of strikes causing damage, major damage, and a negative effect-on-flight (EOF) (page 1 of 4)^{1,2}.

Hazard rank	Wildlife species	Total reported strikes	Percent of strikes with:			Mean hazard level ³
			Damage	Major damage	Neg. EOF	
	Birds					
1	Snow goose	101	78.2	40.6	37.6	52.1
2	Black vulture	74	63.5	32.4	40.5	45.5
3	Northern pintail	101	54.5	19.8	33.7	36.0
4	Turkey vulture	444	50.5	17.8	34.9	34.4
5	Canada goose	1,351	50.1	16.5	27.5	31.4
6	Brown pelican	55	43.6	12.7	36.4	30.9
7	Bald eagle	147	41.5	11.6	28.6	27.2
8	Northern shoveler	38	47.4	18.4	13.2	26.3
9	Sandhill crane	108	39.8	12.0	26.9	26.2
10	American wigeon	43	44.2	14.0	18.6	25.6
11	Double-crested cormorant	90	35.6	15.6	24.4	25.2
12	Greater sage-grouse	31	38.7	12.9	19.4	23.7
13	Wood duck	35	34.3	14.3	14.3	21.0
14	Wild turkey	54	29.6	3.7	25.9	19.8
15	Ring-necked pheasant	66	25.8	13.6	19.7	19.7
15	Gadwall	39	33.3	10.3	15.4	19.7
17	Green-winged teal	38	31.6	5.3	18.4	18.4
18	Common raven	31	25.8	9.7	16.1	17.2
19	Ruddy duck	31	32.3	9.7	6.5	16.1
20	Mallard	633	23.9	9.0	12.2	15.0
20	Osprey	214	22.9	7.5	14.5	15.0
22	Great blue heron	273	20.5	5.9	16.8	14.4
23	Glaucous-winged gull	77	22.1	3.9	13.0	13.0
24	American coot	121	21.5	5.8	9.1	12.1
24	Laysan albatross	33	21.2	0.0	15.2	12.1
26	Great egret	59	16.9	3.4	13.6	11.3
27	Red-tailed hawk	1,471	15.6	4.9	11.1	10.6
28	Cattle egret	240	10.4	3.3	15.4	9.7
29	Western gull	88	12.5	8.0	8.0	9.5
30	California gull	101	10.9	6.9	8.9	8.9
31	Great horned owl	142	15.5	3.5	6.3	8.5
32	Swainson's hawk	72	12.5	2.8	9.7	8.3
33	Herring gull	949	9.9	4.8	9.2	8.0
34	Rock pigeon	2,158	10.3	3.7	9.8	7.9
35	Dunlin	30	10.0	3.3	10.0	7.8

Table 19. Ranking of hazard level of 108 bird and 12 terrestrial mammal species with 30 or more reported strikes with civil aircraft in USA, 1990-2011 (Table 17), based on a composite of the percent of strikes causing damage, major damage, and a negative effect-on-flight (EOF) (page 1 of 4)^{1, 2}.

Hazard rank	Wildlife species	Total reported strikes	Percent of strikes with:			Mean hazard level ³
			Damage	Major damage	Neg. EOF	
	Birds					
1	Snow goose	101	78.2	40.6	37.6	52.1
2	Black vulture	74	63.5	32.4	40.5	45.5
3	Northern pintail	101	54.5	19.8	33.7	36.0
4	Turkey vulture	444	50.5	17.8	34.9	34.4
5	Canada goose	1,351	50.1	16.5	27.5	31.4
6	Brown pelican	55	43.6	12.7	36.4	30.9
7	Bald eagle	147	41.5	11.6	28.6	27.2
8	Northern shoveler	38	47.4	18.4	13.2	26.3
9	Sandhill crane	108	39.8	12.0	26.9	26.2
10	American wigeon	43	44.2	14.0	18.6	25.6
11	Double-crested cormorant	90	35.6	15.6	24.4	25.2
12	Greater sage-grouse	31	38.7	12.9	19.4	23.7
13	Wood duck	35	34.3	14.3	14.3	21.0
14	Wild turkey	54	29.6	3.7	25.9	19.8
15	Ring-necked pheasant	66	25.8	13.6	19.7	19.7
15	Gadwall	39	33.3	10.3	15.4	19.7
17	Green-winged teal	38	31.6	5.3	18.4	18.4
18	Common raven	31	25.8	9.7	16.1	17.2
19	Ruddy duck	31	32.3	9.7	6.5	16.1
20	Mallard	633	23.9	9.0	12.2	15.0
20	Osprey	214	22.9	7.5	14.5	15.0
22	Great blue heron	273	20.5	5.9	16.8	14.4
23	Glaucous-winged gull	77	22.1	3.9	13.0	13.0







CUT HERE FOR
EMERGENCY ACCESS

214

11





Liability Issues

31 Judgments in recent years

20 in favor of Plaintiff

(total of US\$ 41 million)

Likely far more due to settlements and
non-adjudicated agreements

USAir 1549 - likely \$50-100 million

Liability Issues

2005 Air France (Marseille)
(€3.25 million)

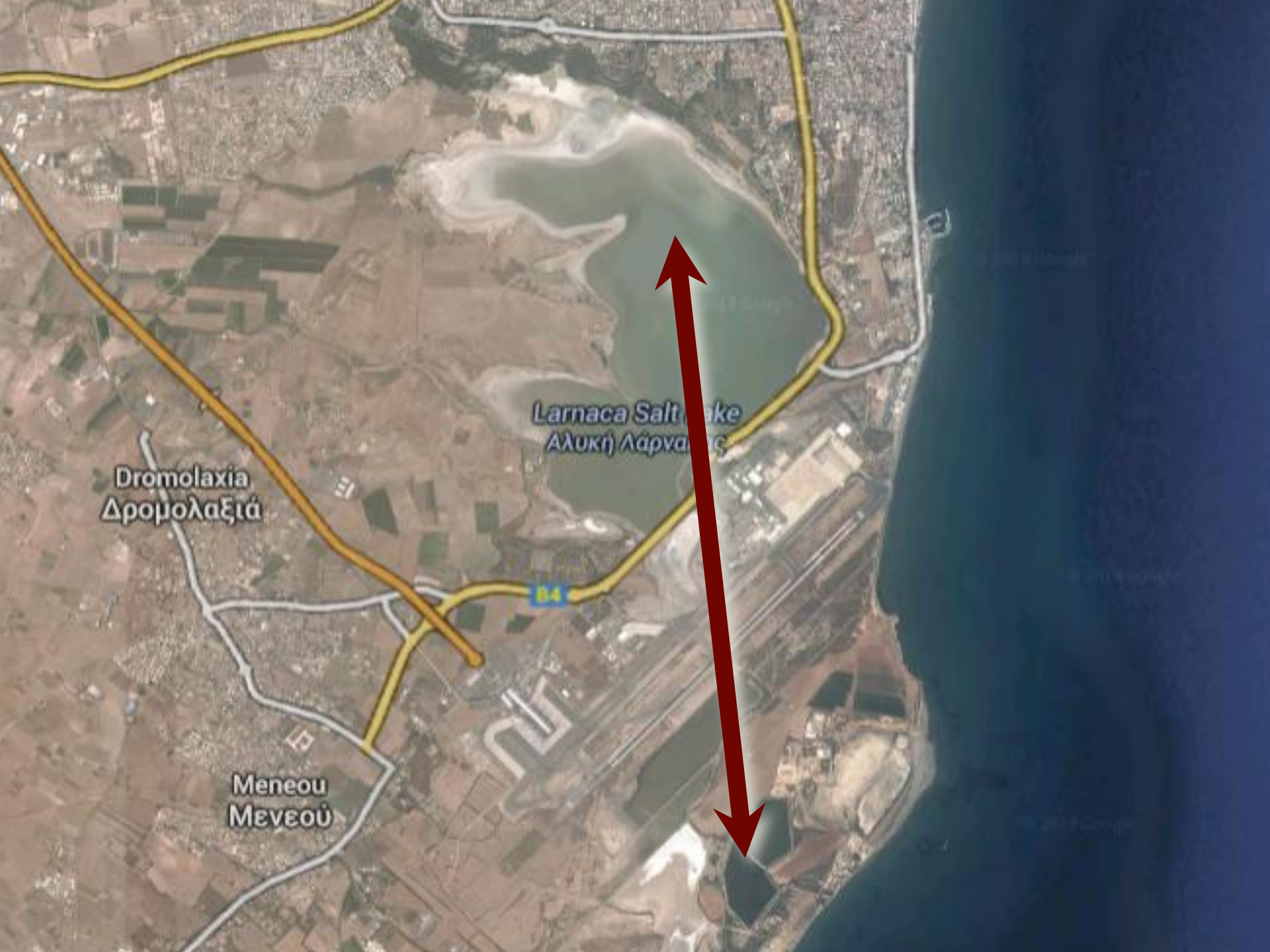
2012 Air Malta (Malta)
(€250,000)

1995 Air France (JFK Airport)
(\$5.3 million)

1995 Ren Corp. (Nashville Airport)
(\$1.4 million)

2008 Larnaca Airport
Cyprus Air
(Hermes Airports)





Larnaca Salt Lake
Αλυκή Λάρνακας

Dromolaxia
Δρομολαξιά

Meneou
Μενεού

B4

Obstacles

Outside of airport





Access

Potential Resolutions

If a strike with a vulture occurs, who suffers?



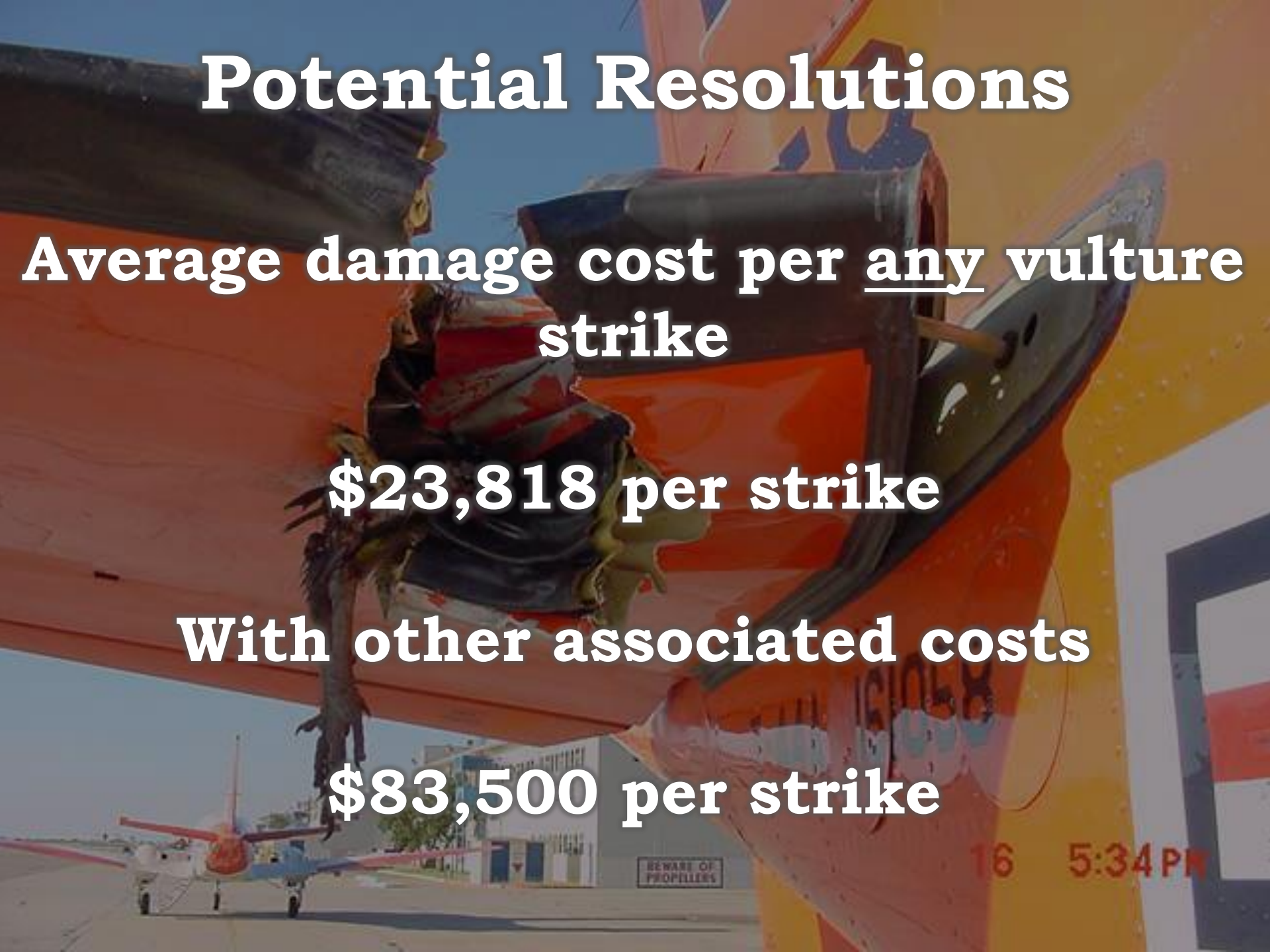
Potential Resolutions

Average damage cost per any vulture strike

\$23,818 per strike

With other associated costs

\$83,500 per strike



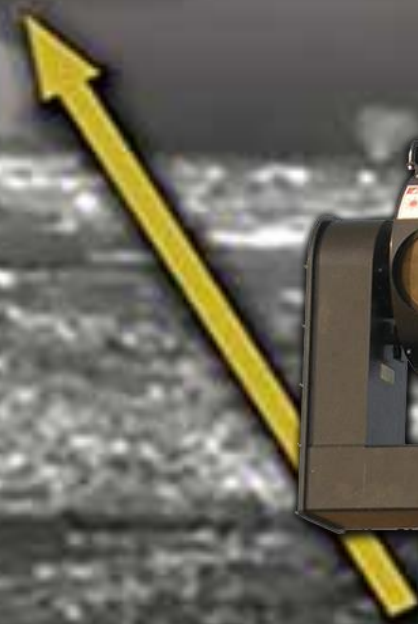
AZ 142.1

EI 8.2

FOV 1.2

Improvements to System

Expensive



Improvements to System

NOTAM (specific)

<i>From</i>	<i>ICAO</i>	<i>NOTAM</i>	<i>EU route</i>
2005-06-29	ESGG	<u>TWY F CLSD DUE ASPHALT...</u>	
2005-08-01	EKCH	<u>RWY 04L CLSD FOR TKOF AND...</u>	
2005-08-04	ENOR	<u>TRIGGER NOTAM - PERM...</u>	
2005-07-14	EKCH	<u>CAT II RWY 04L NOT AVBL....</u>	
2005-08-04	BIRD	<u>TRIGGER NOTAM AIP AIRAC...</u>	
2005-06-30	ENAT	<u>REF AIP NORWAY, AD2 ENAT...</u>	
2005-06-29	ESGG	<u>TWY F CLSD DUE ASPHALT...</u>	

Improvements to System

NOTAM (specific)

Training of ATC



Improvements to System

NOTAM (specific)

Training of ATC

**Work with airlines to modify flight
schedules**

The background image shows a blurred airport departure board. The board has columns for flight number, gate, and remarks. Visible flight numbers include FR2372, FR3003, FR232, FR434, FR034, FR2314, FR203, and FR584. Gate numbers visible are 42, 41, 53, 58, 45, 48, and 44. Remarks include 'Final Call' and 'Go To Gate'. Passenger names like 'mpino', 'beck', and 'nna' are partially visible in the left column.

Flight Number	Gate	Remarks
FR2372	42	Final Call
FR3003	41	Final Call
FR232	53	Final Call
FR434	58	Final Call
FR034	45	Go To Gate
FR2314	48	Go To Gate
FR203	44	Go To Gate
FR584		

Improvements to System

A man in a flight suit and orange safety vest is looking through binoculars. The background is a plain wall with a door handle visible.

NOTAM (specific)

Training of ATC

**Work with airlines to modify flight
schedules**

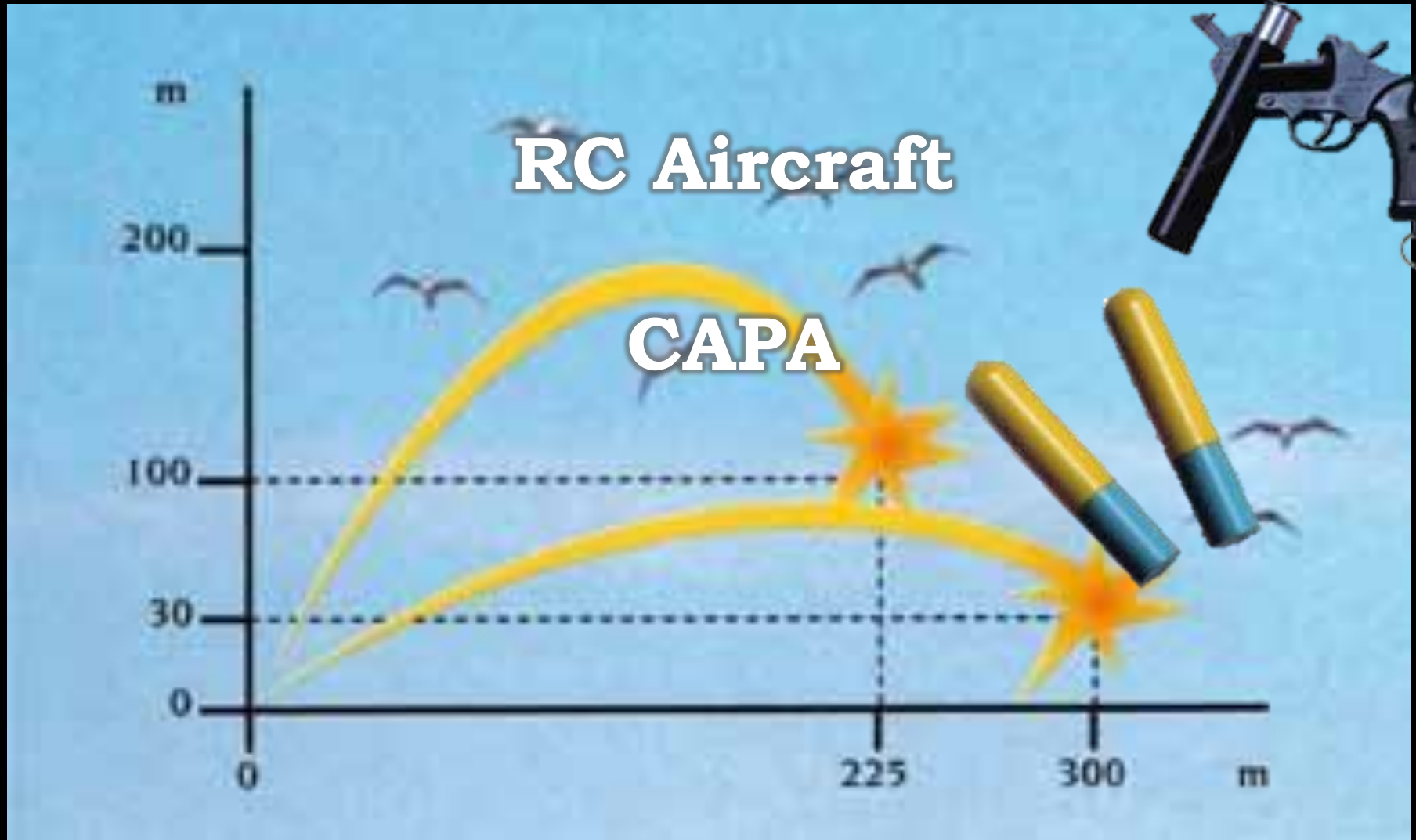
Field observer warning

Active Management

RC Aircraft



Active Management



[Inicio](#) » [Economía](#) » [Local](#)

Lunes 20 de Septiembre de 2010 - 09:53 PM

Ave golpeó ala de Fokker



Para ahuyentar las aves de los aeropuertos, se utilizan halcones robot o, de manera más artesanal, con estallidos de pólvora. (Foto: Archivo/VANGUARDIA LIBERAL)



Un ave, al parecer un chulo, golpeó ayer el ala derecha de un avión de la empresa Avianca que cubría la ruta

Palabra clave:

Publicidad

BUCARAMANGA.COM 

Busque en nuestro sitio

Destacamos del Directorio de Bucaramanga.com



Mr. Patacón en
Pescados y Mariscos -
Guía de Restaurantes



Hamburguesas El
Garaje en Comidas
Rápidas - Guía de
Restaurantes

Haga conocer aquí su negocio en el mejor directorio comercial de la ciudad

Ranking de noticias

[+ Recientes](#) [+ Vistas sección](#) [+ Vistas](#)

Motociclistas de Bucaramanga anuncian marcha para este viernes

Ecuador es un rival complicado: Pibe Valderrama

En las protestas hay un componente de criminales: Ministro de Defensa

Wildlife Hazard Assessment of Panama Pacifico Airport



Dr. Nicholas Carter
CARSAMPAF