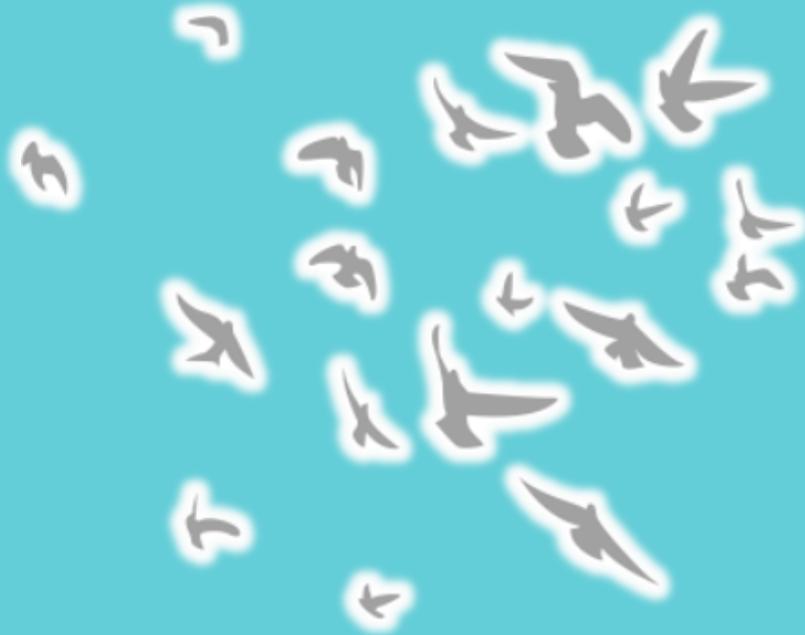


2018 BIRD STRIKE COMMITTEE USA MEETING

Baltimore, Maryland



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Overview



- 01 Introduction**
- 02 Brazilian Legislation**
- 03 Brazilian Statistics**
- 04 Case Study**
- 05 Communication process**
- 06 Final thoughts**



01 Introduction



Offshore Aviation in Brazil

Since 1980

Air passenger and cargo transport to offshore platforms began in the 1980s. The largest customer in Brazil is PETROBRAS, which ranked fifth in 2011 among the largest publicly traded oil companies in the world.



**Air passenger and
Cargo Transport**



**Medical
Evacuation**



**Helicopter
Maintenance**



**Helicopter Transport
of External Cargo.**



National Civil Aviation Agency from BRAZIL.

ANAC regulatory agency established to regulate and inspect civil aviation activities as well as aeronautical and airport infrastructure in Brazil.

The government agency works to ensure civil aviation safety and security and to improve the quality of services, fostering a competitive market.

ANAC



CENIPA

Brazilian Aeronautical Accidents Investigation and Prevention Center (CENIPA) is the body of the Aeronautical Command responsible for the aeronautical accident investigation activities of civil aviation and the Brazilian Air Force.

The aircraft accident investigations are based on ICAO Annex 13.

CENIPA manages the Brazilian wildlife strike database.

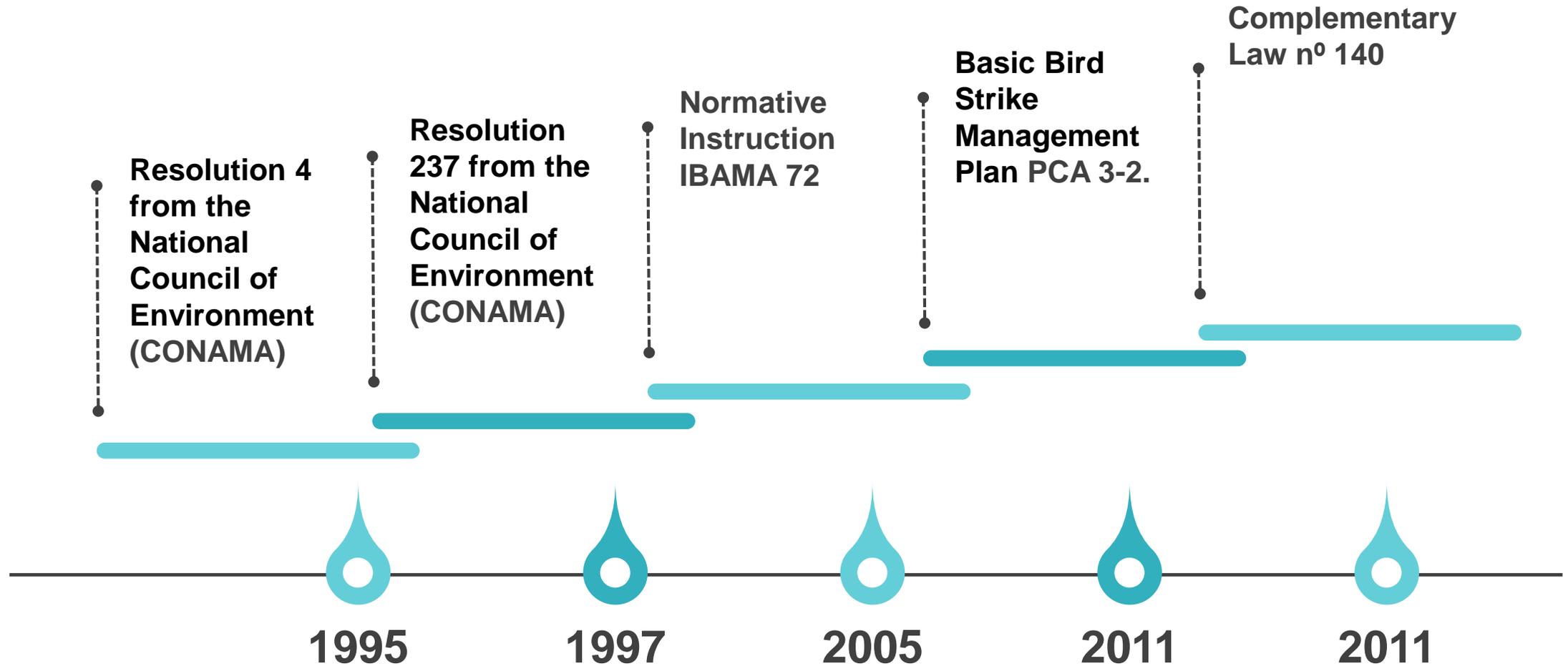




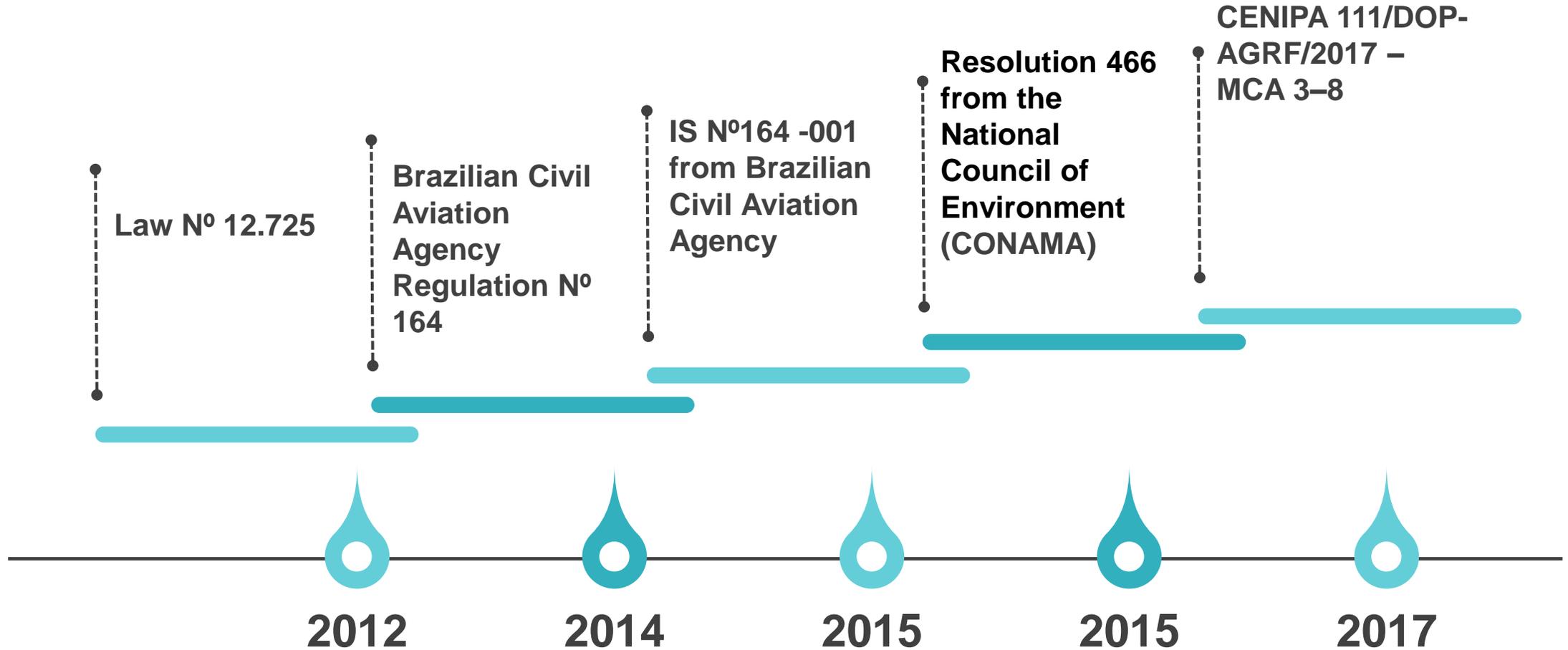
02 Brazilian Legislation



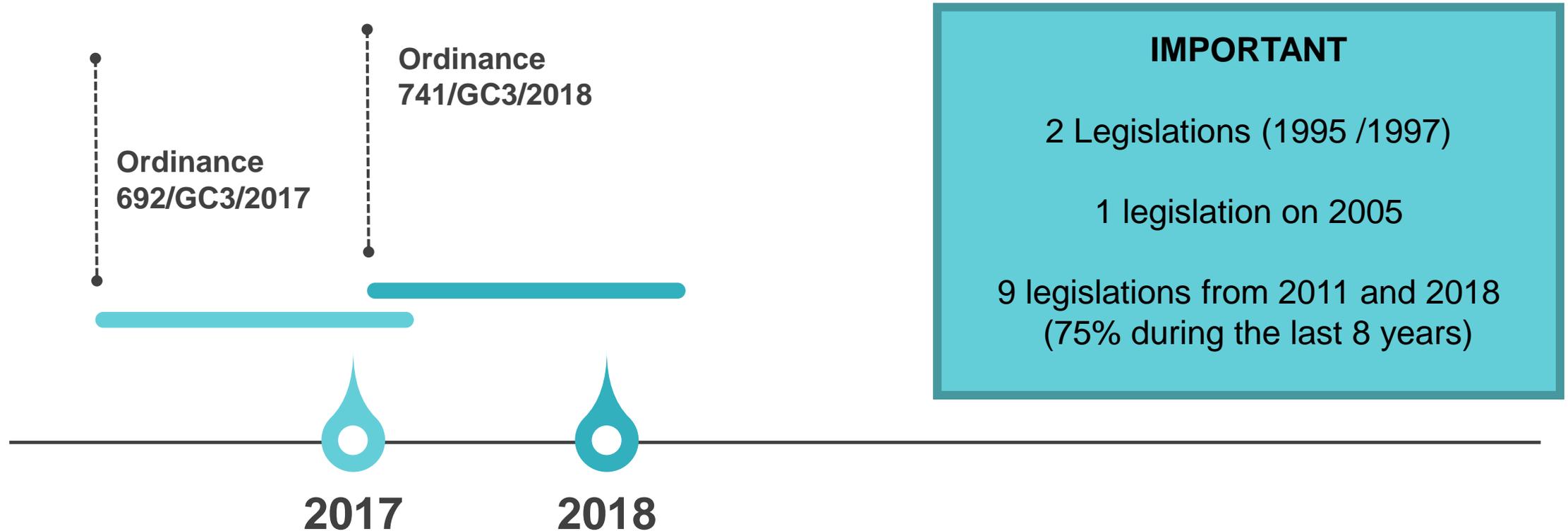
Brazilian Legislation



Brazilian Legislation



Brazilian Legislation





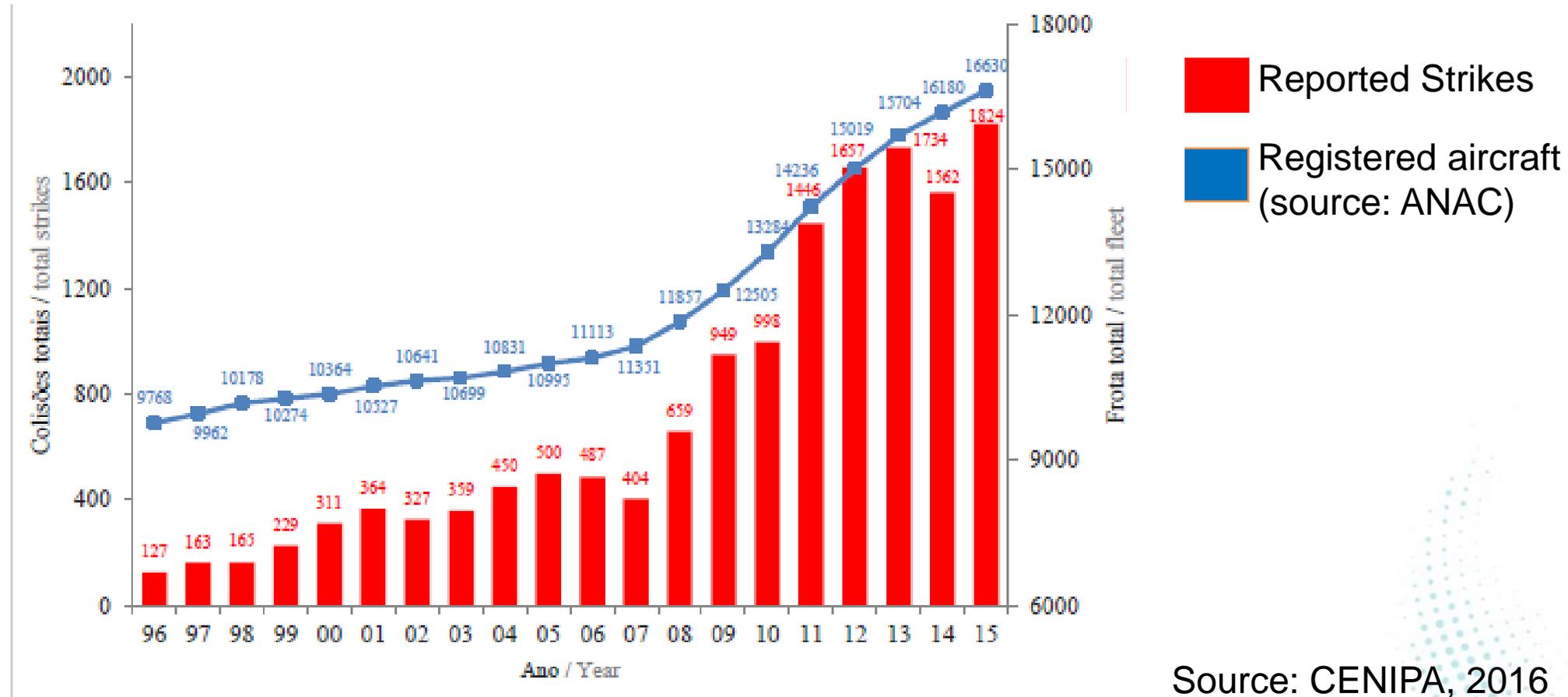
03

Brazilian Statistics



Brazilian Statistics

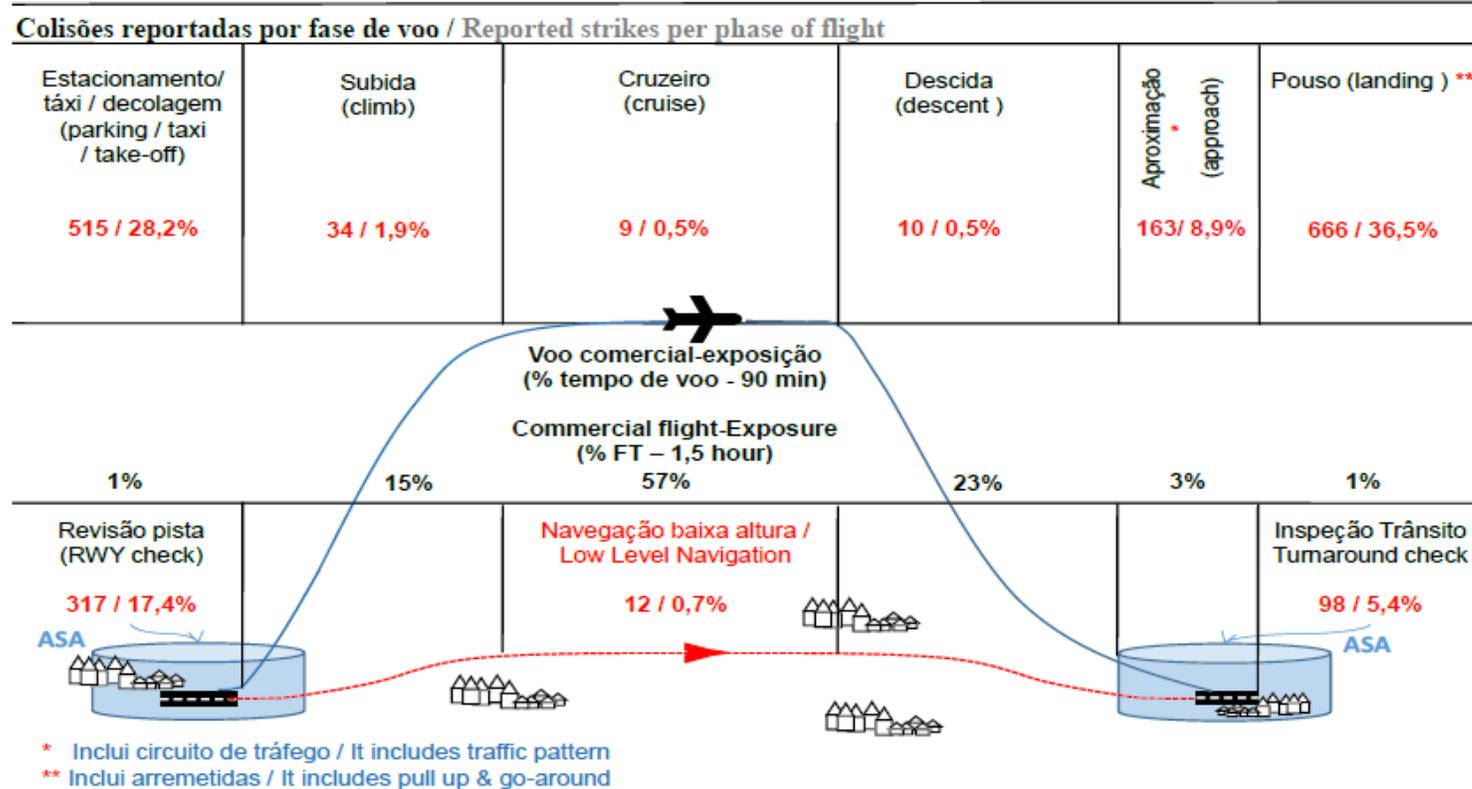
Reported Strikes versus Brazilian aircrafts registered fleet from 2008 to 2015



Source: CENIPA, 2016

Brazilian Statistics

Reported Strikes per Phase of Flight in 2015



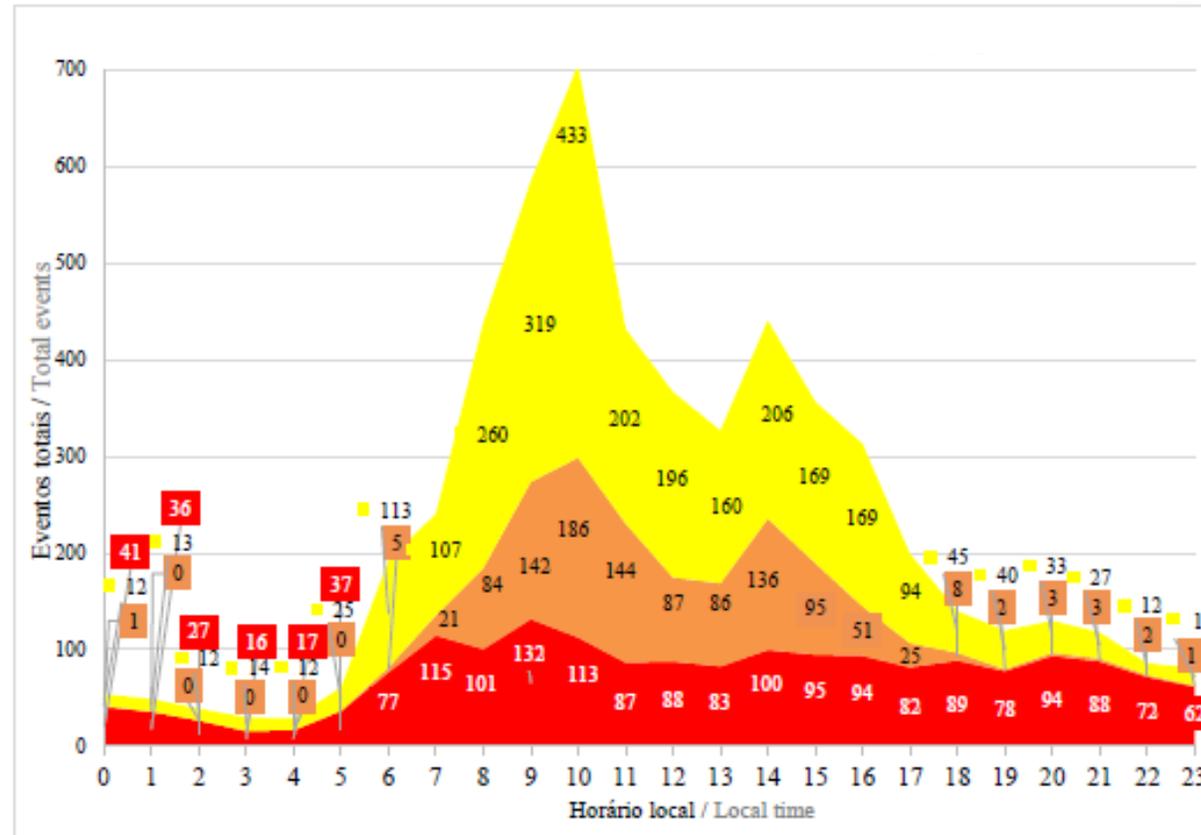
Adaptado de: Boeing Statistical Summary of Commercial Jet Airplane Accidents 1959-2011

Departure Phase (30,0%) and arrival phase (36,5%) > Total 64,7%

Source: CENIPA, 2016

Brazilian Statistics

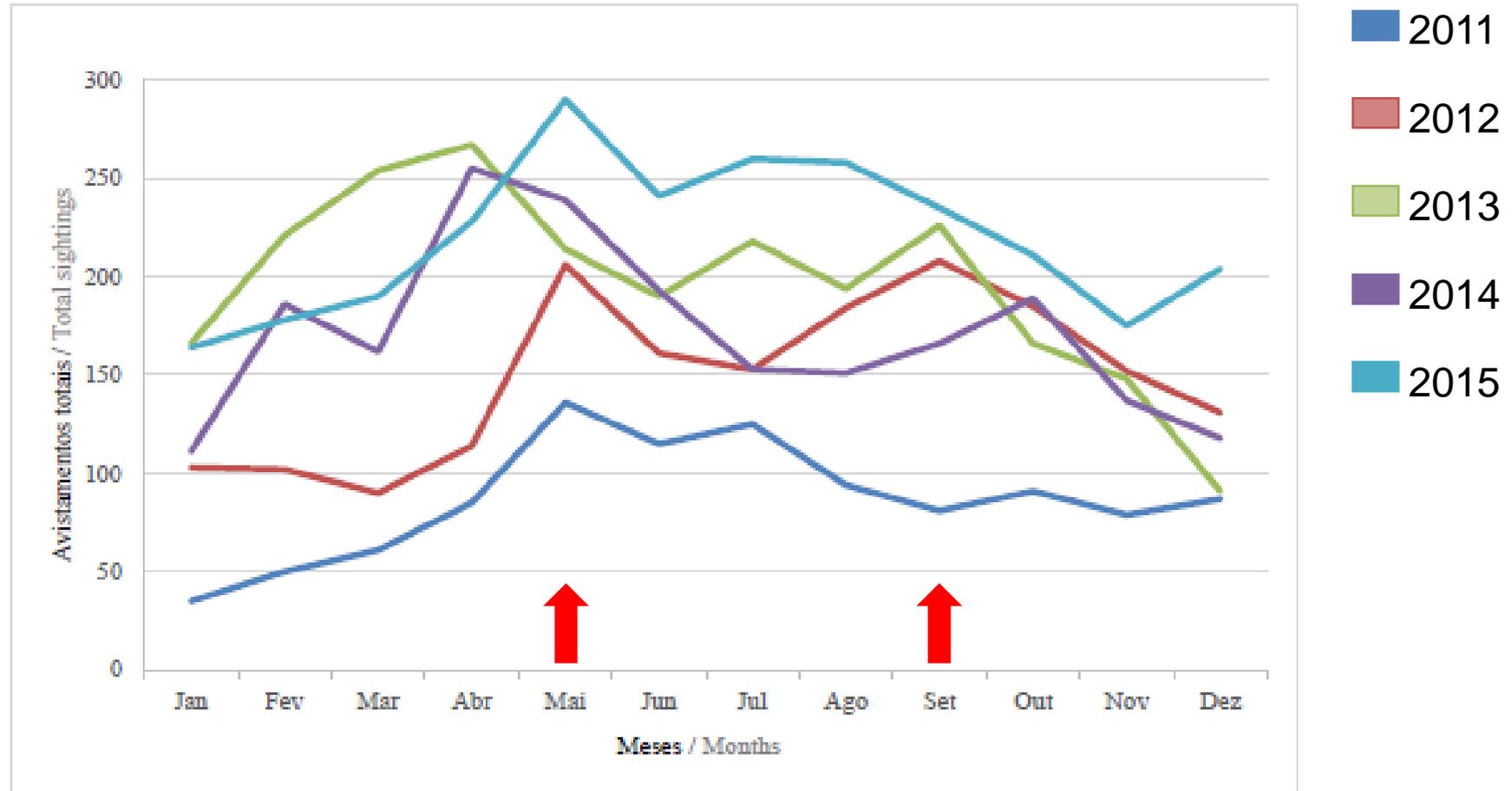
Reported Events by Local Time in 2015



Source: CENIPA, 2016

Brazilian Statistics

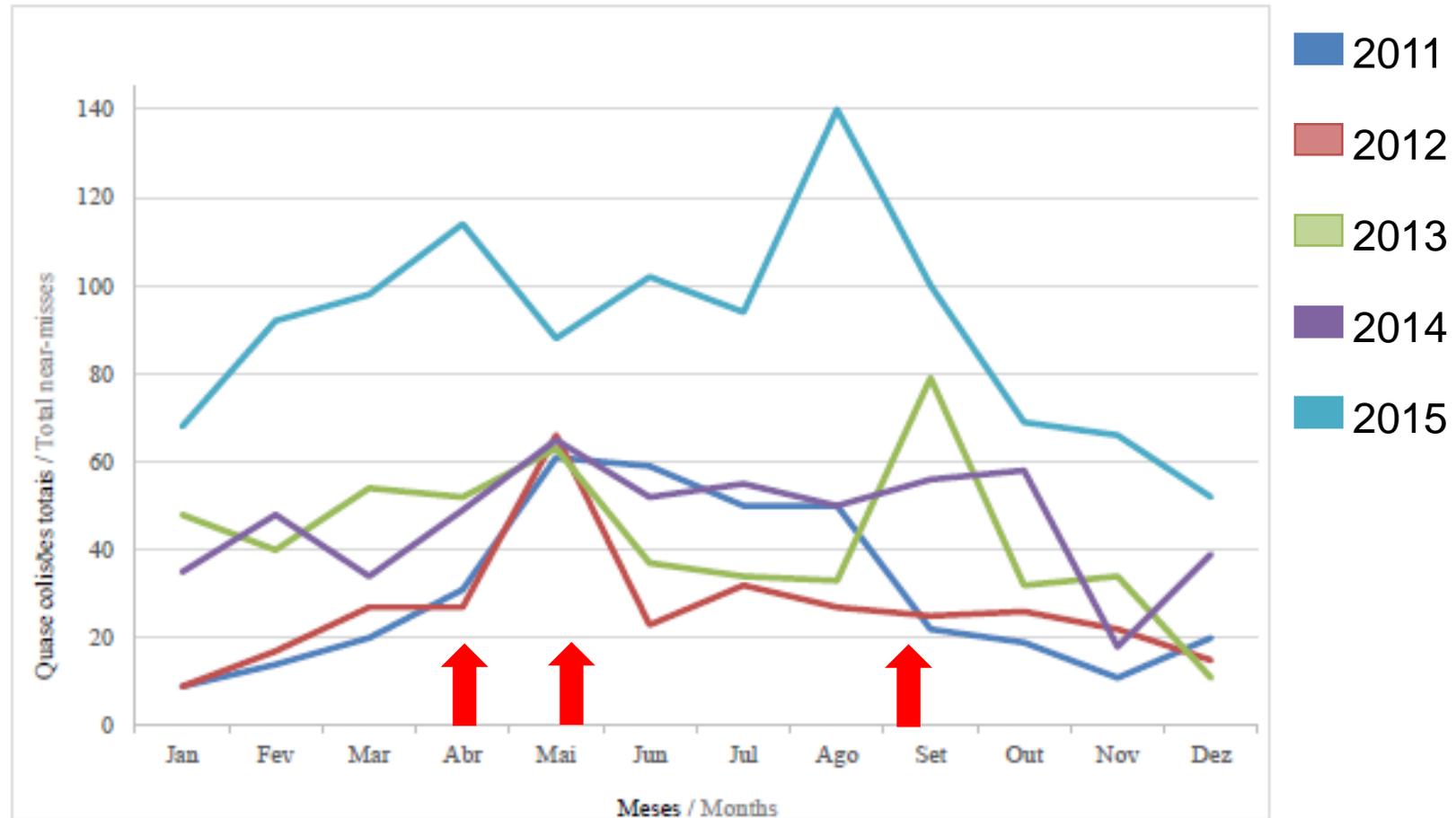
Reported Sightings per Month from 2011 to 2015



Source: CENIPA, 2016

Brazilian Statistics

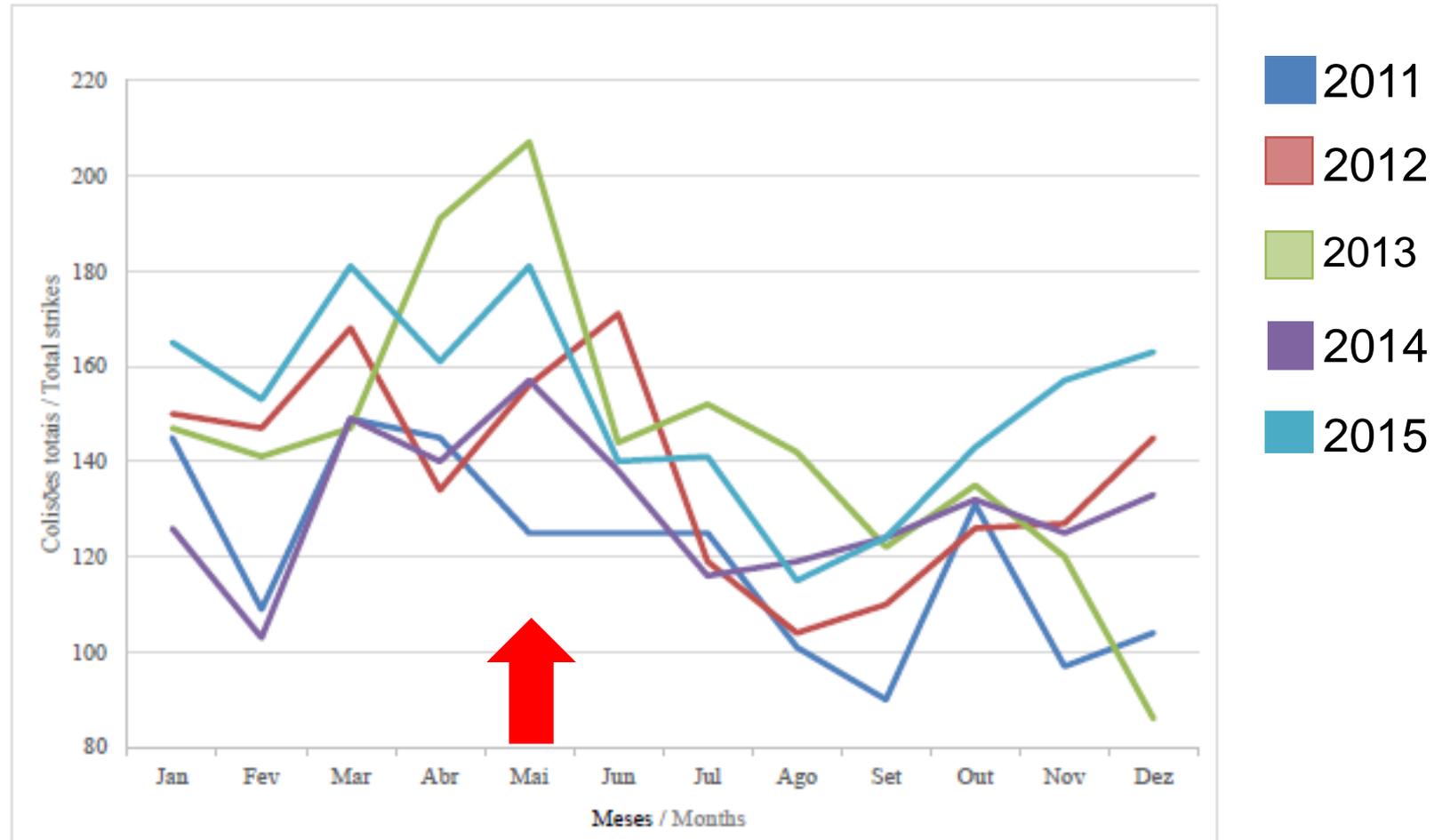
Reported Near-misses per Month from 2011 to 2015



Source: CENIPA, 2016

Brazilian Statistics

Reported Strikes per Month from 2011 to 2015



Source: CENIPA, 2016

Considerations





04 **Case Study**



Bird Strike AW139

During initial climb out the crew members saw a flock of birds, they tried to avoid a strike by manouvering the helicopter to the left (before reaching 500 feet AGL). Pilots then saw another flock of birds, tried again another evasive manouver to avoid the strike. However a black vulture hit the aircraft nose at approximately 700 feet AGL and 90 kt. After the impact the flight crew returned and safely landed at the same aerodrome.



**Blood on
main rotor
blade**



**Damage on
radome nose.**

Date: May 27th 2017
Hour:10:20AM (local time)
**Place: Itanhaém Airport
(São Paulo – Brazil)**
Helicopter model: AW-139
Damage: Radome
Phase: initial climb

Bird Strike Costs

Helicopter not airworthy for 2 days

Schedule 3 flights per day > Total 6 hours per day

Direct Costs

Nose Radome: US\$ 18,057.53
Tax: US\$ 120,00
Shipment: US\$ 1,449.24
Maintenance (labor cost): US\$ 1,500.00

Total direct cost: US\$ 21,126.77

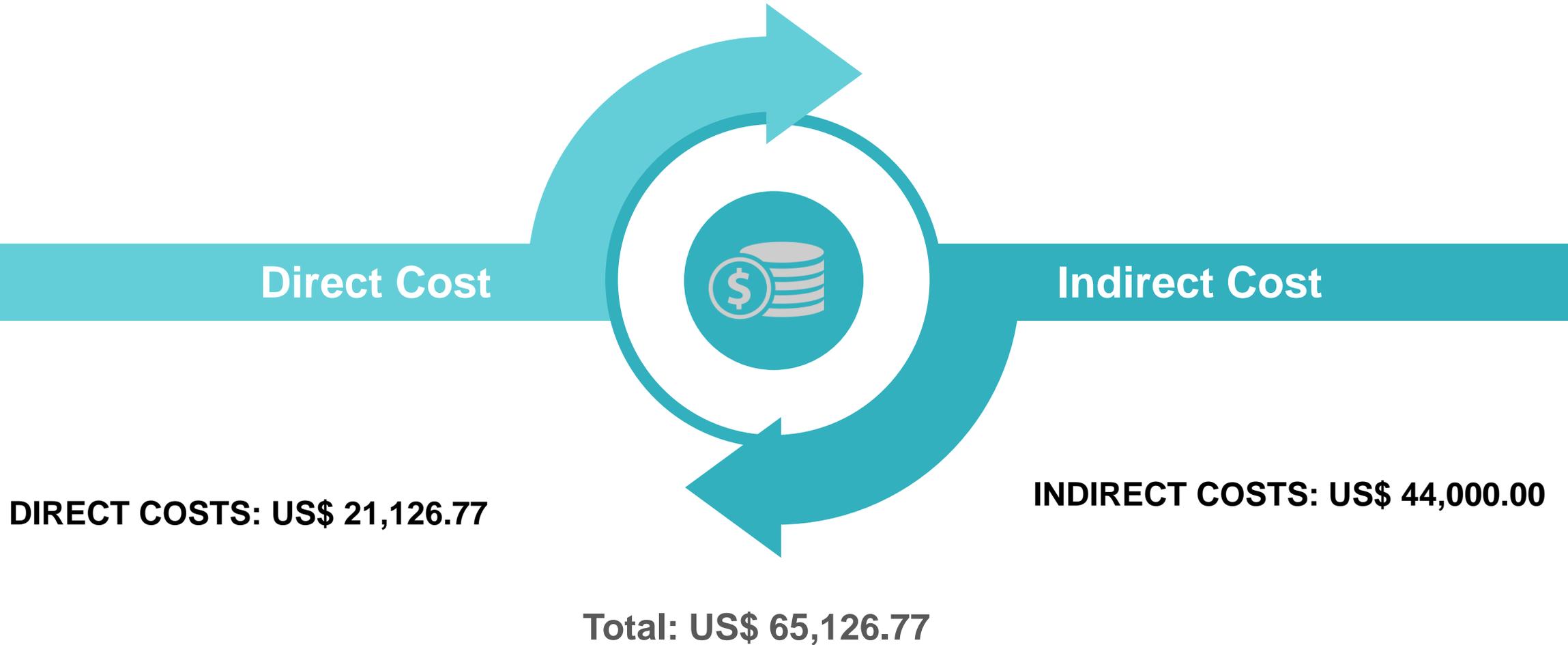
Indirect Costs

Helicopter fixed cost per day (average): US\$ 10,000.00
Helicopter Offshore loss of revenue per hour (average): US\$ 2,000.00
Fixed: US\$ 10,000.00 X 2 days = US\$ 20,000.00
Total loss of revenue: US\$ 2,000.00 x 12 hours = US\$ 24,000.00

Total indirect cost: US\$ 44,000.00

Basic helicopter (R 44) U\$ 180.00
Sightseeing Flight (AS 350) U\$ 2,000.00
Transport Flight (AS 350) U\$ 1,800.00

Bird Strike Costs

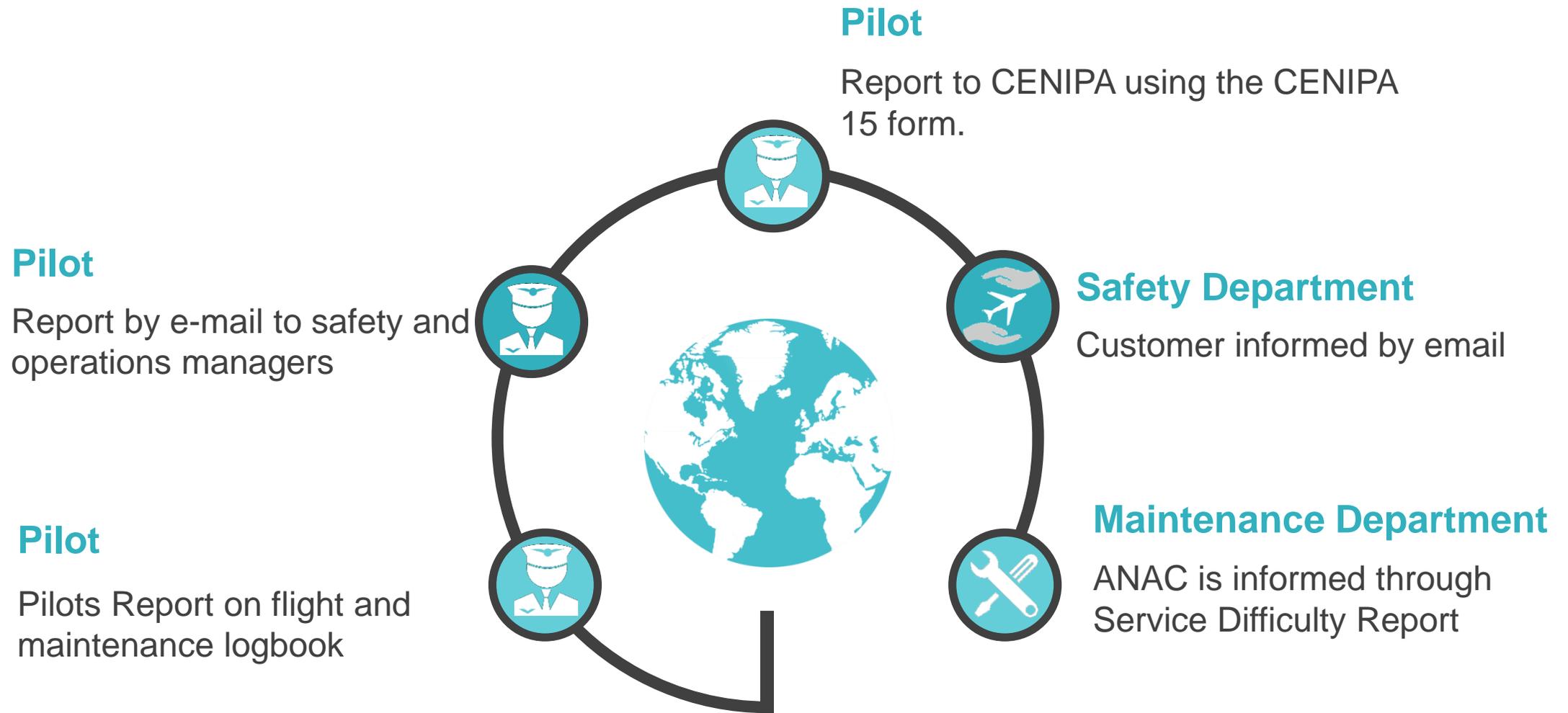




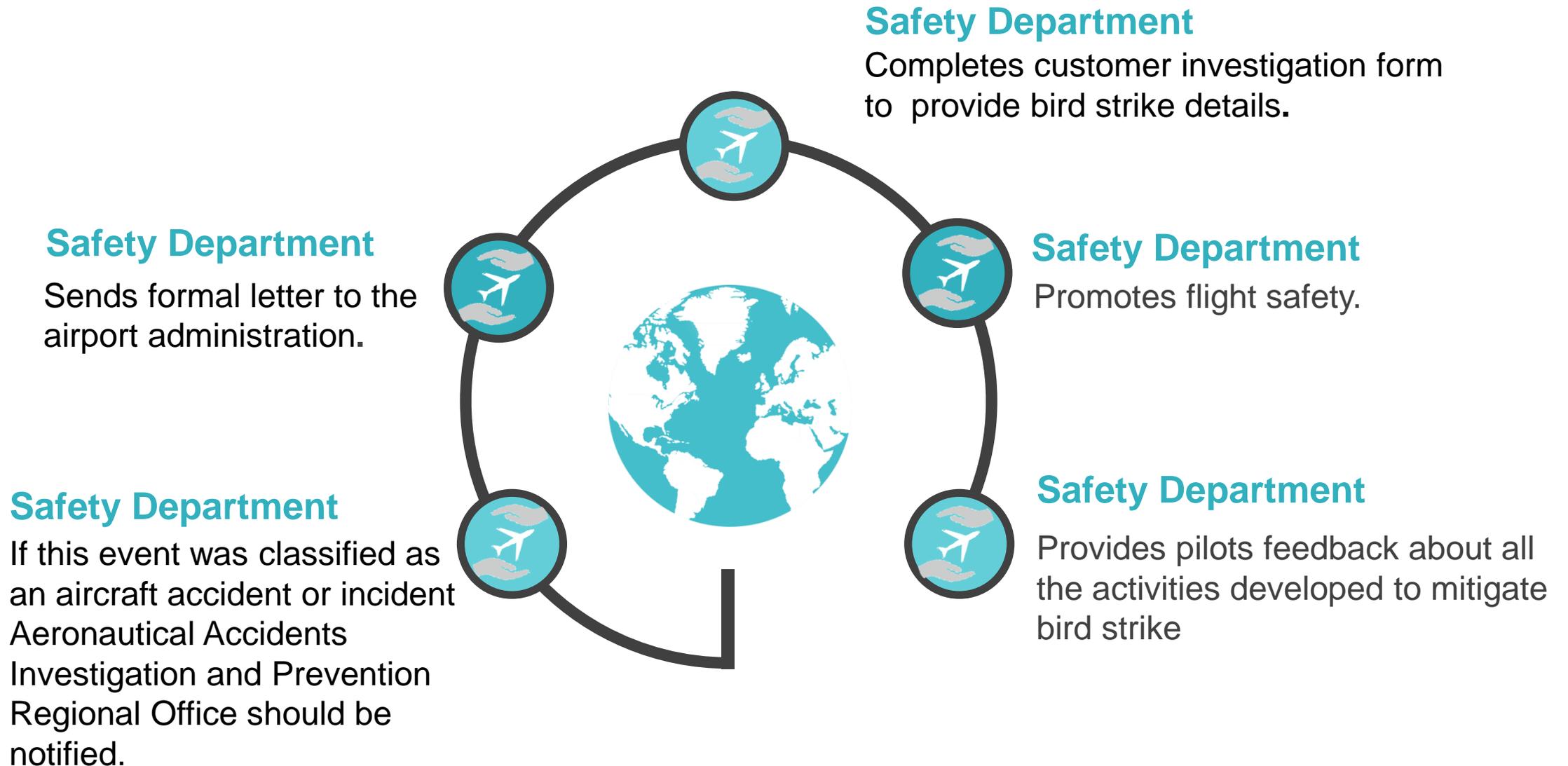
05 Communication process



Communication Process – Bird Strike



Communication Process and Actions - After Bird Strike



Flight Safety promotion

01

Safety Alert

Aeróleo
SAFETY ALERT
PERIGO DA FAUNA NAS UNIDADES MARÍTIMAS

Alerta Número: 024 - 2017 10/05/2017

De: Safety Aeróleo TÁxi Aéreo Para: Todos os colaboradores da Aeróleo TÁxi Aéreo

Objetivo: Elevar a consciência situacional dos pilotos da Aeróleo TÁxi Aéreo sobre as ameaças relacionadas a presença de aves próximas as unidades marítimas.

Histórico: No dia 01 de maio de 2017, foi registrado um reporte de ocorrência no RAMCO sobre a presença de aves próximas a unidade marítima Peregrino A. O pouso e desembarque foram realizados com cautela. Também foi identificado pela tripulação barcos de pesca muito próximos a unidade marítima.

Estadísticas revelam que de 70% a 80% das colisões com pássaros ocorrem entre o solo e 500 pés de altura. No caso específico das Unidades Marítimas, existe um agravante que é o acúmulo de peixes que comem os crustáceos que ficam presos nas estruturas metálicas submersas das plataformas. Esses peixes funcionam como um fator de atração e concentração de aves marinhas, que se alimentam deles, sobrevoando em torno das plataformas marítimas.

O momento resultante do impacto de um pássaro com uma aeronave varia de acordo com o peso do pássaro e a velocidade da aeronave. Um pássaro do porte de um atobá, com cerca de 2 kg, produz um impacto de 7 ton, em uma aeronave cuja velocidade esteja a 140 nós. O efeito de um impacto dessa magnitude poderá causar danos imprevisíveis, dependendo do local: cabine dos pilotos, rotores, motores etc.

AÇÕES DE PREVENÇÃO

- Nas fases críticas de pouso/decolagem e sobrevoos de Unidades Marítimas, deve-se redobrar a vigilância enfoca quanto à detecção antecipada de pássaros;
- Ficar atento aos alertas de pássaros, via rádio, de outras aeronaves ou dos órgãos de controle do espaço aéreo;
- Quando estiver voando em uma região de concentração de pássaros, reduza a velocidade, imediatamente, para reduzir os possíveis efeitos de uma colisão;
- Em caso de avistamento, colisão ou quase colisão faça o preenchimento da ficha CENIPA 15 através do site do CENIPA. Após o recebimento do e-mail de confirmação do reporte ao CENIPA, encaminhar o mesmo para: riscodafaina@aeroleo.com.br

Faça a sua contribuição a Segurança das Operações da Aeróleo TÁxi Aéreo!
Preencha o seu relato através do reporte de ocorrência na plataforma RAMCO

03

Safety Week

Aeróleo
with the safety company

I Safety week

28/Mar Safety Case Vanessa Rafael
29/Mar Helideck Gilvan Barros
30/Mar HOMP Hoel Tadeu
31/Mar CFIT Marcio Felipe
01/Abr LOSA Leandro Antunes

LOCAL: Base Cabo Frio – Sala de Tripulantes HORÁRIO: 16:00 às 16:45

Voar é nossa paixão, **SEGURANÇA** é nossa missão.

02

Biweekly pilots' meeting



04

Safety Seminar

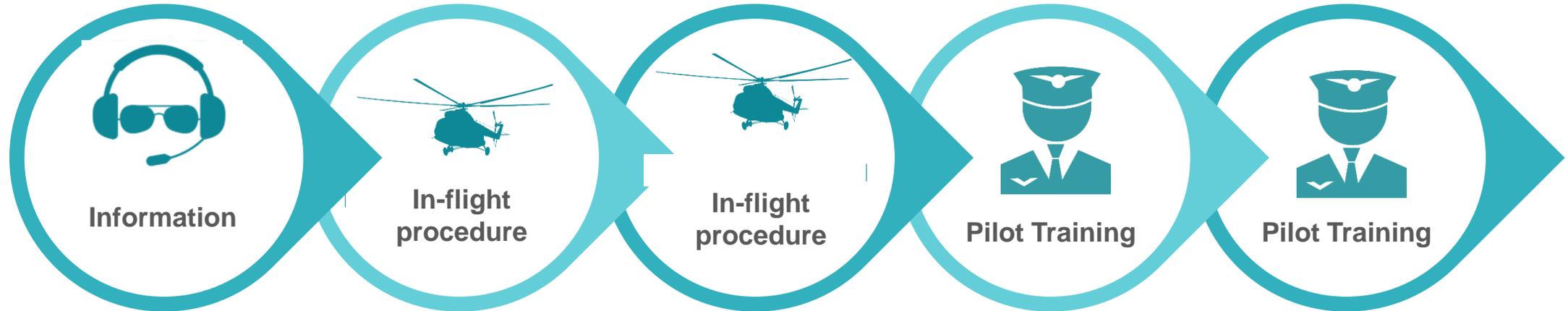




06 Final thoughts



Bird Strike Prevention on Offshore Operation



Information

Use Automatic Terminal Information Service (ATIS) and Notices to Airmen (NOTAM) to enhance aviation safety.

In-flight procedure

Use the helicopter landing lights during departure and arrival phases of flight.

In-flight procedure

Reduce airspeed to 100 kt while entering the onshore line

Pilot Training

Use the helicopter controls to pull up and turn to avoid bird strike.

Pilot Training

The correct use of CENIPA 15 form. It is important to wildlife strike management because information is paramount for safety efforts and programs developed by aviation stakeholders.

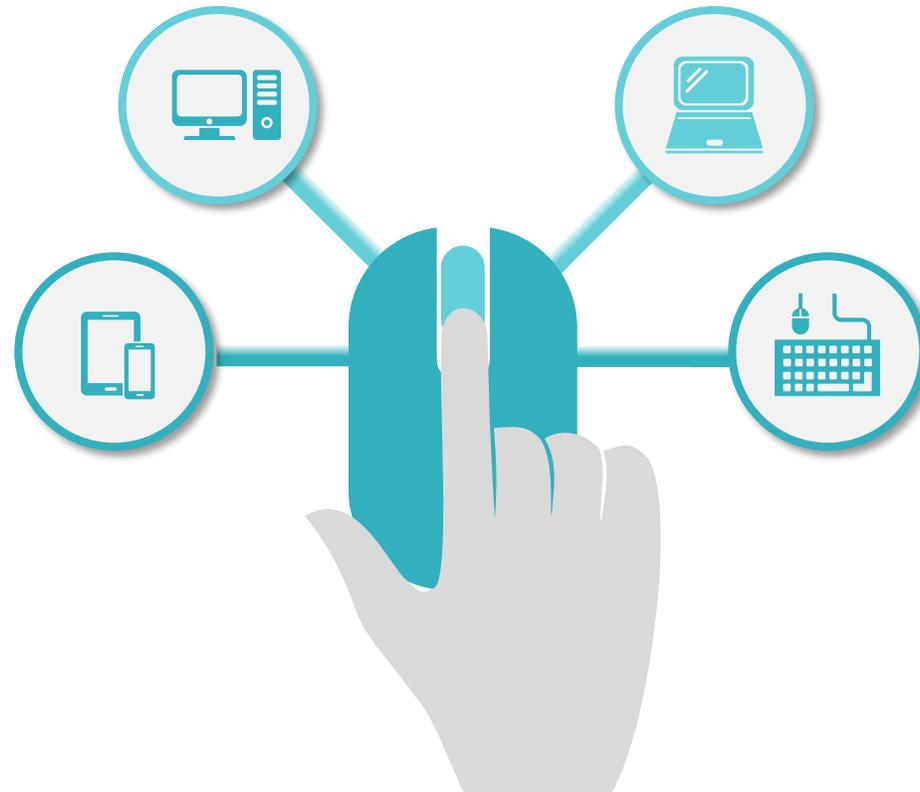
Database is Essential for Wildlife Strike Mitigation Efforts

A POOR SAFETY culture is the main obstacle for wildlife strike reporting by crews and airport stakeholders.

Why does it happen?

Low situational awareness of the relationship between reporting and wildlife strike management.

Low rate of aircraft accidents due to wildlife strikes



What should we do to improve our database?

Enhance crew training (initial and refreshing) and airport stakeholders instructions to improve the quality of strike reports.

Improve integration and the communication process among aviation stakeholders.

Thank you!



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References

Basic Bird Strike Management Plan PCA 3-2. **PCA 3-2, Nº 249/ GC5** Plano Básico de Gerenciamento do Risco Aviário - PBGRA nos aeródromos brasileiros de 06 de maio de 2011. Disponível em: <http://www.normasbrasil.com.br/norma/portaria-249-2011_231719.html>. Acesso em 20 ago.2018.

Brazilian Civil Aviation Regulation Nº 164. **RBAC Nº 164** de 29 de maio de 2014. Disponível em: <<http://www.anac.gov.br/assuntos/legislacao/legislacao-1/boletim-de-pessoal/2014/22/anexo-iii-2013-rbac-164>> .Acesso em 20 ago.2018.

CENIPA 111/DOP-AGRF/2017 – **CENIPA 111/DOP-AGRF/2017 MCA 3–8** de 4 de dezembro de 2017. Disponível em: <<http://www2.fab.mil.br/cenipa/index.php/prevencao/risco-de-fauna/mgrf> > .Acesso em 20 ago.2018.

Complementary Law nº 140. **Lei Complementar nº 140** de 8 de dezembro de 2011. Disponível em: <http://www.planalto.gov.br/ccivil_03/leis/lcp/Lcp140.htm>. Acesso em 20 ago.2018.

Law Nº 12.725. Lei nº 12.725, de 16 de outubro de 2012. Dispõe sobre o controle da fauna nas imediações de aeródromos. **Diário Oficial da República Federativa do Brasil**, 17 out. Brasília, DF. 2012.

Normative Instruction IBAMA 72. Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis. **Instrução Normativa Ibama 72** de 18 de agosto de 2005. Disponível em: <http://licenciamento.cetesb.sp.gov.br/legislacao/federal/inst_normativa/2005_Instr_Norm_IBAMA_72.pdf>. Acesso em 20 ago.2018.

Resolution 466 from the National Council of Environment (CONAMA). Ministério do Meio Ambiente. Conselho Nacional do Meio Ambiente. **Resolução CONAMA nº 466/2015**, de 05 de fevereiro de 2015. Disponível em: <<http://www.mma.gov.br/port/conama/legi>>. Acesso em 01 jun. 2016.

References

Resolution 4 from the National Council of Environment (CONAMA). Ministério do Meio Ambiente. Conselho Nacional de Meio Ambiente (CONAMA). **Resolução CONAMA nº 4/21995** de 9 de outubro de 1995. Disponível em: <<http://www2.mma.gov.br/port/conama/legiabre.cfm?codlegi=182>>. Acesso em 20 ago.2018.

Resolution 237 from the National Council of Environment (CONAMA). Ministério do Meio Ambiente. Conselho Nacional de Meio Ambiente (CONAMA). **Resolução CONAMA nº 237/1997** de 13 de dezembro de 1997. Disponível em: <<http://www2.mma.gov.br/port/conama/res/res97/res23797.html>>. Acesso em 20 ago.2018.

Ordinance 692/GC3/2017. **Portaria 692/GC3/2017** de 10 de maio de 2017. Disponível em: <http://www.lex.com.br/legis_27414130_PORTARIA_N_692_DE_10_DE_MAIO_DE_2017.aspx> Acesso em 20 ago.2018.

Ordinance 741/GC3/2017. **Portaria 741/GC3/2018** de 23 de maio de 2018. Disponível em: <http://www.imprensanacional.gov.br/materia/-/asset_publisher/Kujrw0TZC2Mb/content/id/15725043/do1-2018-05-24-portaria-n-741-gc3-de-23-de-maio-de-2018-15725039> Acesso em 20 ago.2018.