



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

*A United Nations Specialized Agency*

## **Workshop on Air Navigation Deficiencies Management (Mexico City, Mexico, 17 May 2013)**

**State of Aviation Safety: Deficiencies in airport facilities, wildlife,  
NAV aids are contributing factors for accidents in LATAM/CAR**

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Regional Officer Flight Safety

ICAO NACC Regional Office

# Facts and Figures



2012 (PRELIMINARY)

2030 (FORECAST)

**PASSENGERS  
CARRIED**

**2.9 billion** → **6.3 billion**  
**+5% vs 2011**      **+4.5% annual  
growth rate**

**AIRCRAFT  
DEPARTURES**

**31 million** → **59 million**  
**+1 million vs 2011**      **+3.6% annual  
growth rate**

Traffic Statistics for Revenue Schedule Services

# Data Driven – Sources of Information



## Fatal Accidents by CAST/ICAO Taxonomy Accident Pan American\* Airline Domicile – 2000 through 2009

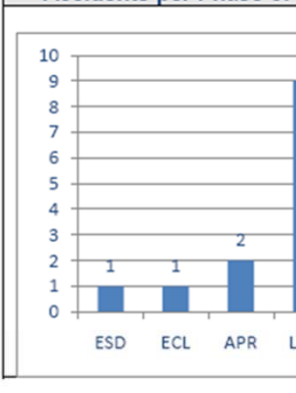
Phase	Count	Percentage
CRIT	6	43%
LOC-I	6	43%
RE-Landing - ARG	1	7%
RAMP	0	0%
MISC	0	0%
SCF-NP	1	7%
OTHER	0	0%
SCF-PP	0	0%
<b>Total</b>	<b>14</b>	<b>100%</b>



North America		IATA Members		
14 Accidents (2009)		Hull Losses		
		Fatal		
Passenger	Cargo	Ferry	Jet	Turboprop
64%	36%	0%	64%	36%

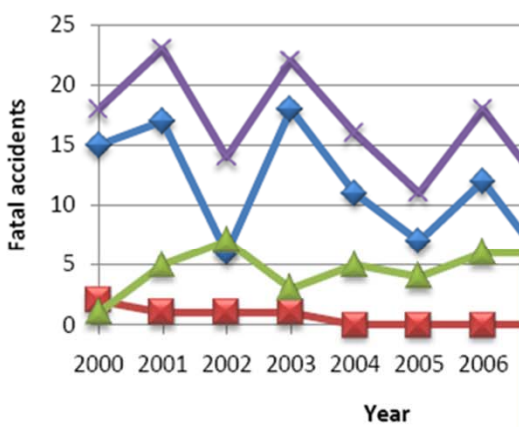


Accidents per Phase of Flight\*



Breakdown per Accident Category

## Fatal Accidents Distribution per Year



## ASIAs Member

44 Airlines

- ABX Air
- Air Wisconsin Airlines
- Alaska Airlines
- Aloha Air Cargo
- American Airlines
- American Eagle Airlines
- Atlas Air
- Cape Air
- Chautauqua Airlines
- CitationAir
- CommutAir
- Compass Airlines
- Delta Air Lines
- Empire Airlines
- Evergreen International Airlines
- ExpressJet
- FedEx Express
- Frontier Airlines
- GoJet Airlines
- Hawaiian Airlines
- \*Horizon Air
- JetBlue Airways
- Mesa Airlines
- Miami Air International
- North American Airlines
- Omni Air International
- Piedmont Airlines
- Pinnacle Airlines
- Polar Air Cargo
- PSA Airlines
- Republic Airlines
- Shuttle America
- Silver Airways
- SkyWest Airlines
- Southern Air
- Southwest Airlines
- Spirit Airlines



- Trans states Airlines
- United Airlines
- United Parcel Service
- US Airways
- Virgin America
- World Airways

### Government

- FAA, NASA,
- Naval Air Force Atlantic,
- USAF Safety Center

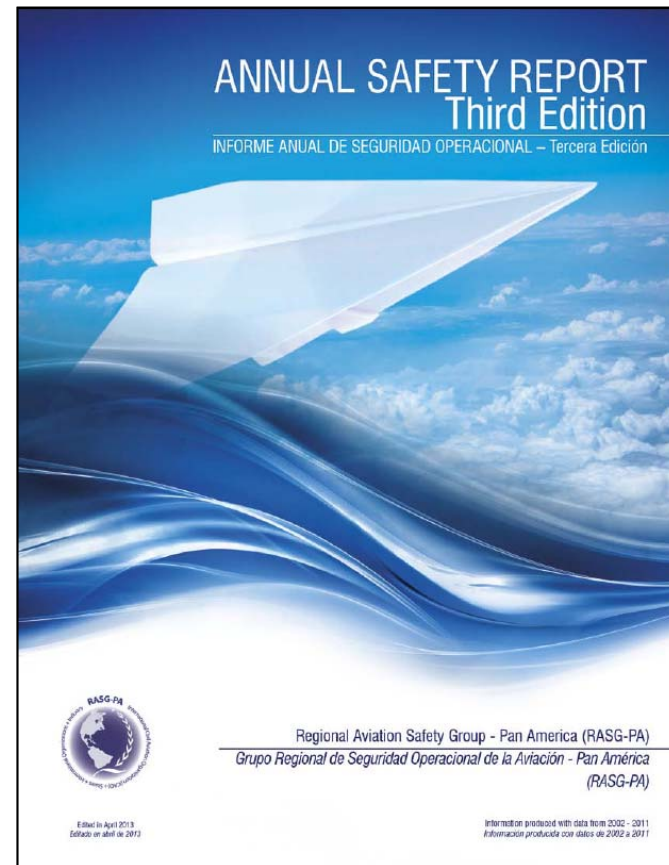
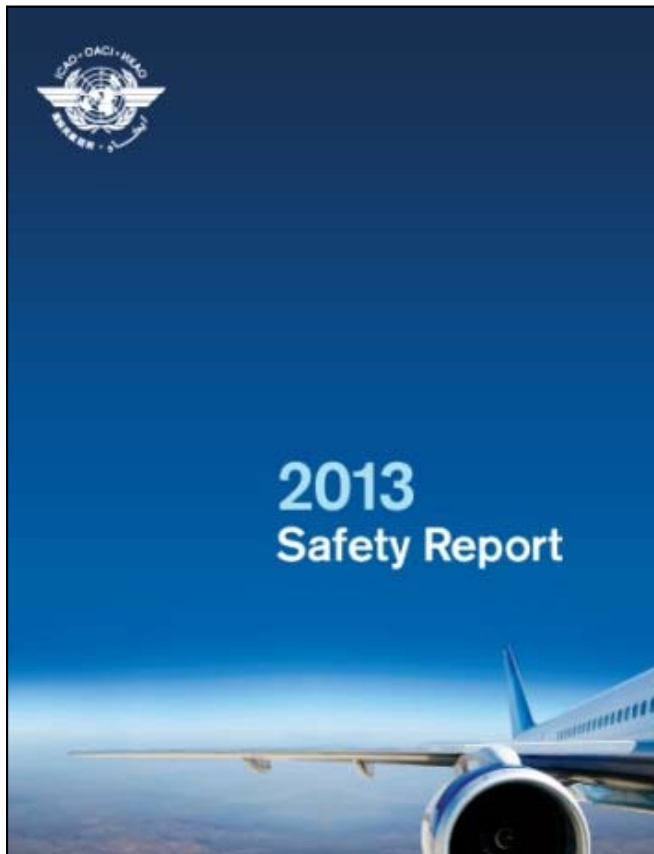
### Industry

- AIA, Airbus, ALPA,
- A4A, Boeing, CAPA, NACA,
- NATCA, RAA, SWAPA

\*Newest Member

As of 14 February 2013

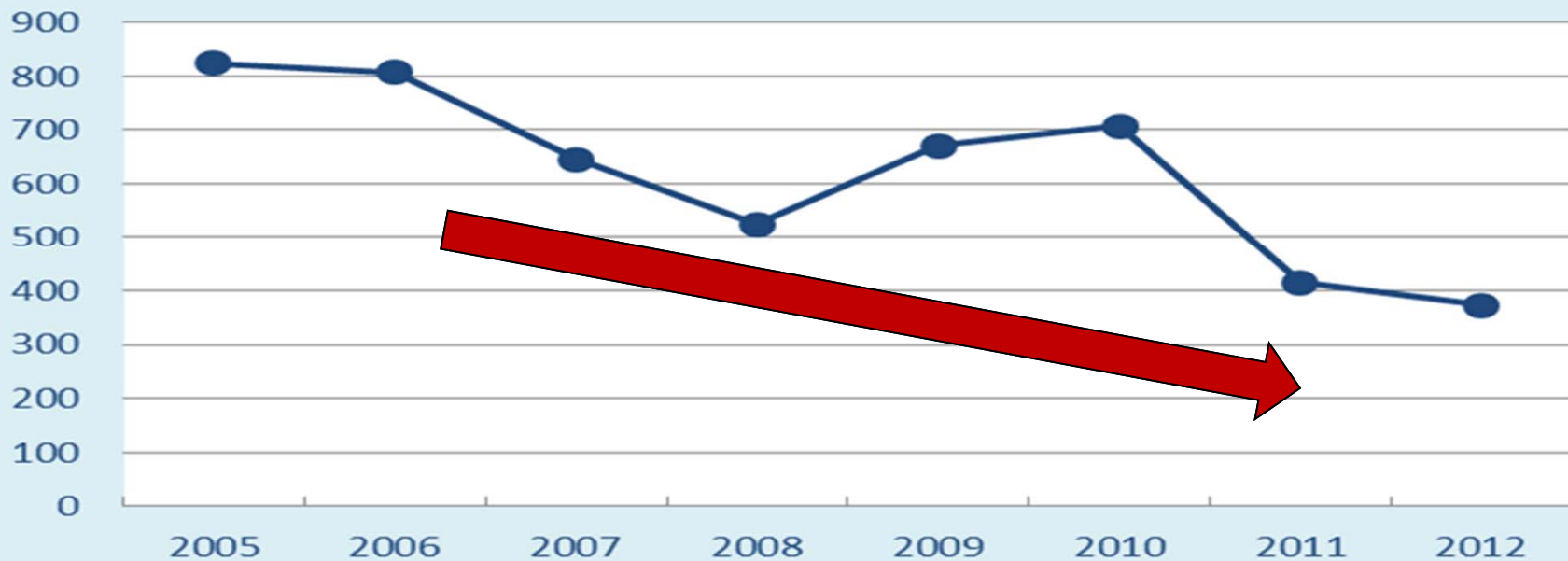
# 2013 ICAO Safety Report & RASG-PA Annual Safety Report



# Status of Aviation Safety - ICAO



Fatality Trends: 2005 - 2012

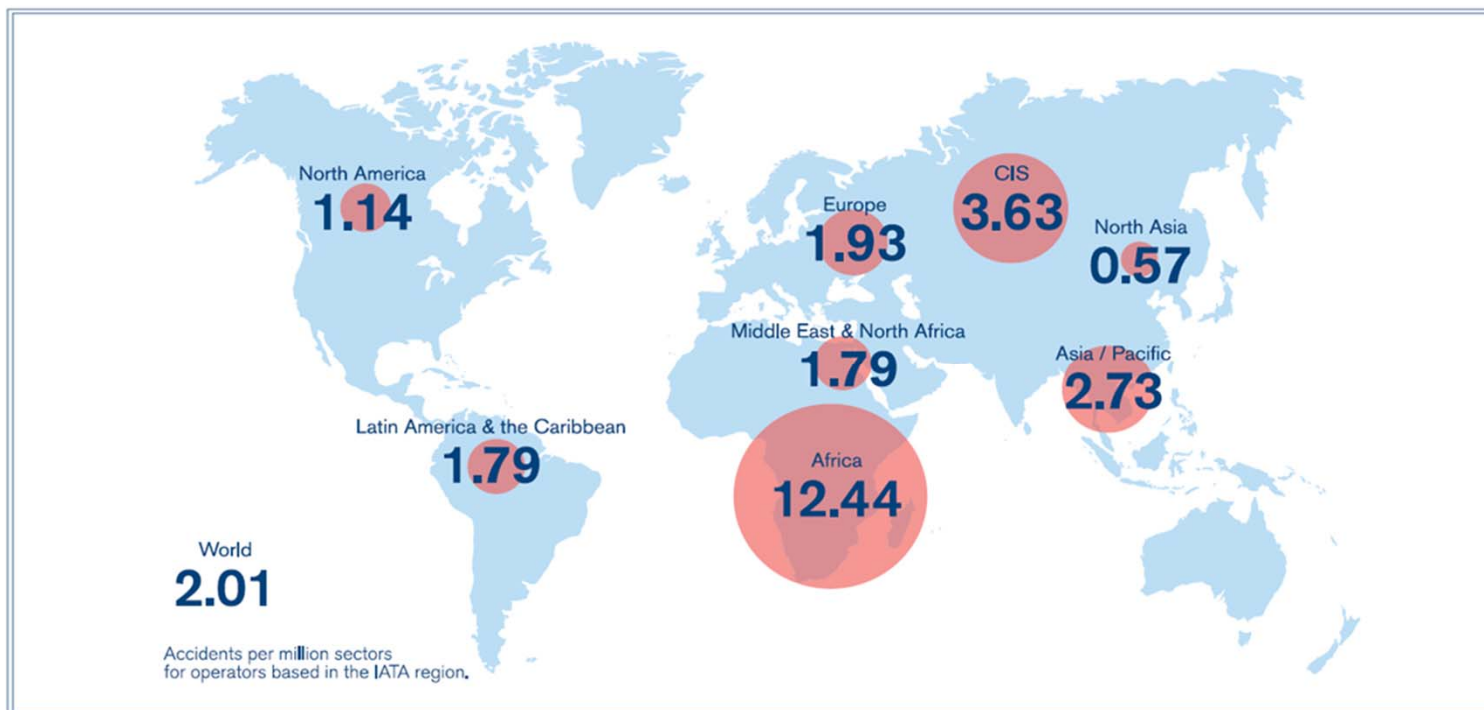


**NUMBER OF FATALITIES CONTINUE TO DECLINE**  
**GLOBAL ACCIDENT RATE IS SIGNIFICANTLY LOWER**

# Accident Rates by Region - IATA



Year	AFI	ASPAC	CIS	EUR	LATAM / CAR	MENA	NATNAM	NASIA
2011	6.17	2.29	8.91	1.73	4.22	4.67	1.33	0.93
2012	12.44	2.73	3.63	1.93	1.79	1.79	1.14	0.57



# 2012 Fatal Accidents per Region - IATA



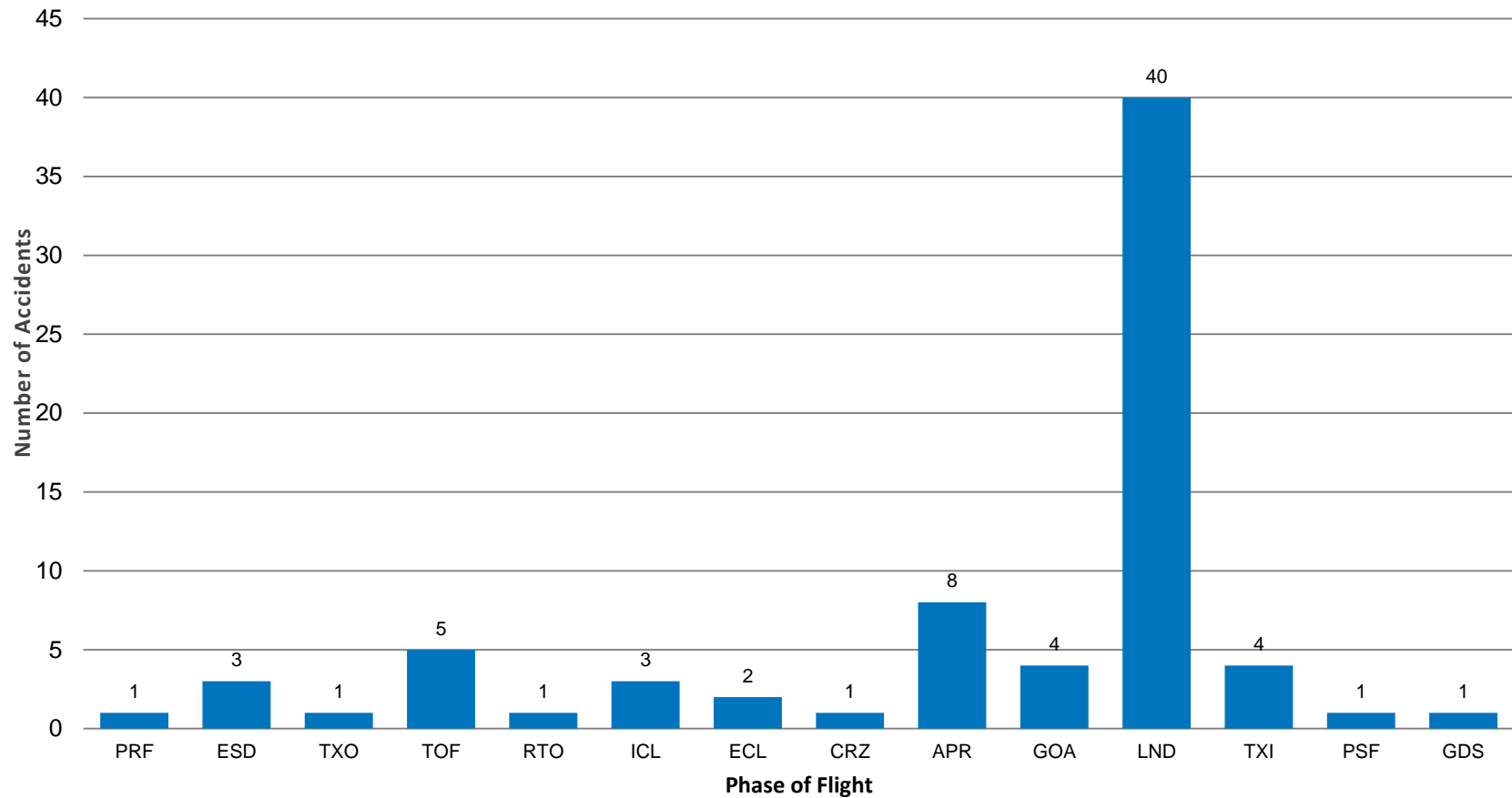
	AFI	ASPAC	CIS	EUR	LATAM / CAR	MENA	NATNAM	NASIA
<b>Accidents 2012</b>	<b>13</b>	<b>16</b>	<b>5</b>	<b>16</b>	<b>6</b>	<b>3</b>	<b>14</b>	<b>2</b>
<b>Accidents 2011</b>	<b>8</b>	<b>13</b>	<b>13</b>	<b>15</b>	<b>15</b>	<b>8</b>	<b>17</b>	<b>3</b>
<b>Accidents 2010</b>	<b>18</b>	<b>12</b>	<b>9</b>	<b>12</b>	<b>12</b>	<b>10</b>	<b>18</b>	<b>3</b>
<b>Accidents 2009</b>	<b>15</b>	<b>15</b>	<b>2</b>	<b>17</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>3</b>
<b>Accidents 2008</b>	<b>8</b>	<b>17</b>	<b>11</b>	<b>17</b>	<b>19</b>	<b>10</b>	<b>25</b>	<b>2</b>

<b>Fatal Accidents (2012)</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Fatalities (2012) (Crew and Passengers)</b>	<b>160</b>	<b>162</b>	<b>53</b>	<b>0</b>	<b>6</b>	<b>32</b>	<b>1</b>	<b>0</b>

# Accidents per Phase of Flight - IATA



World Wide Accidents per Phase of Flight 2012

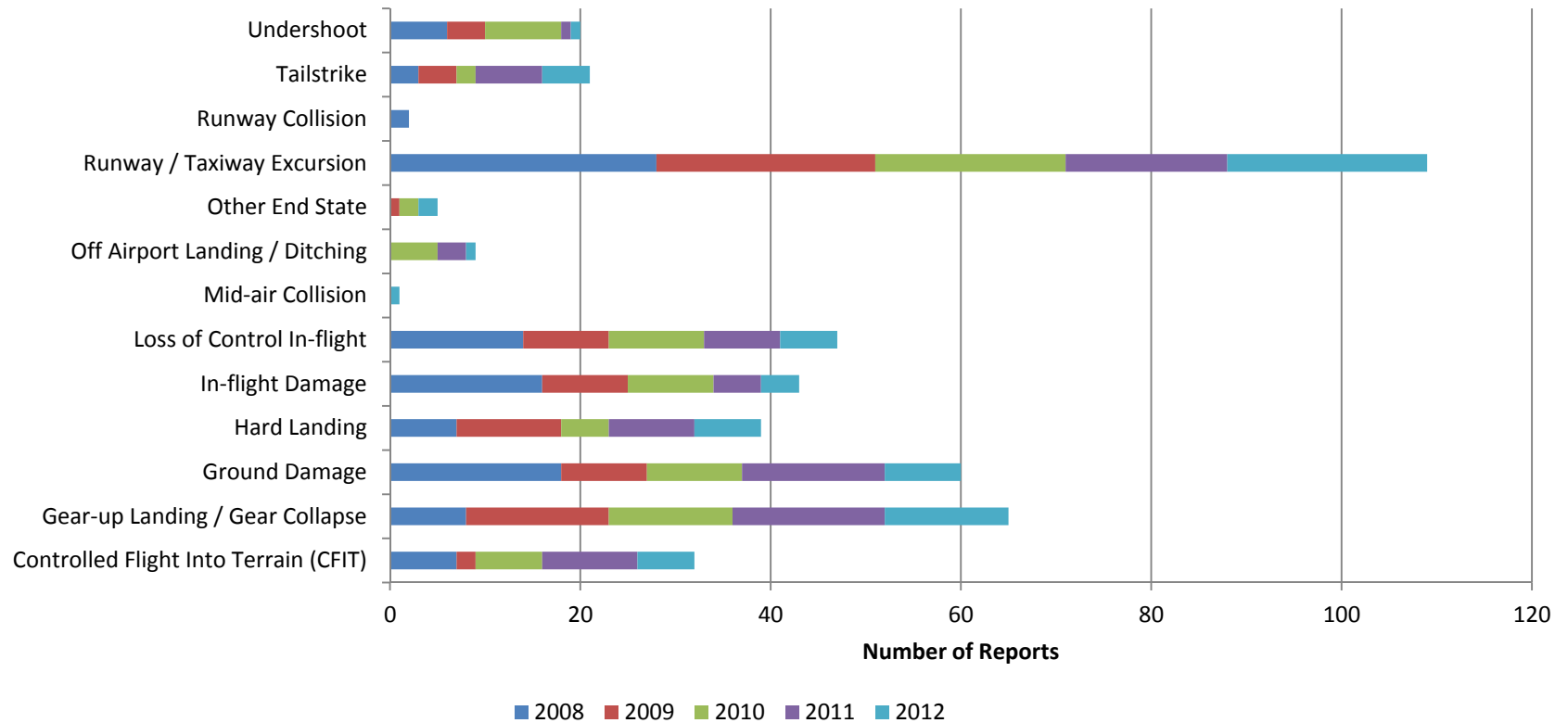




# Accident Categories Comparison - IATA



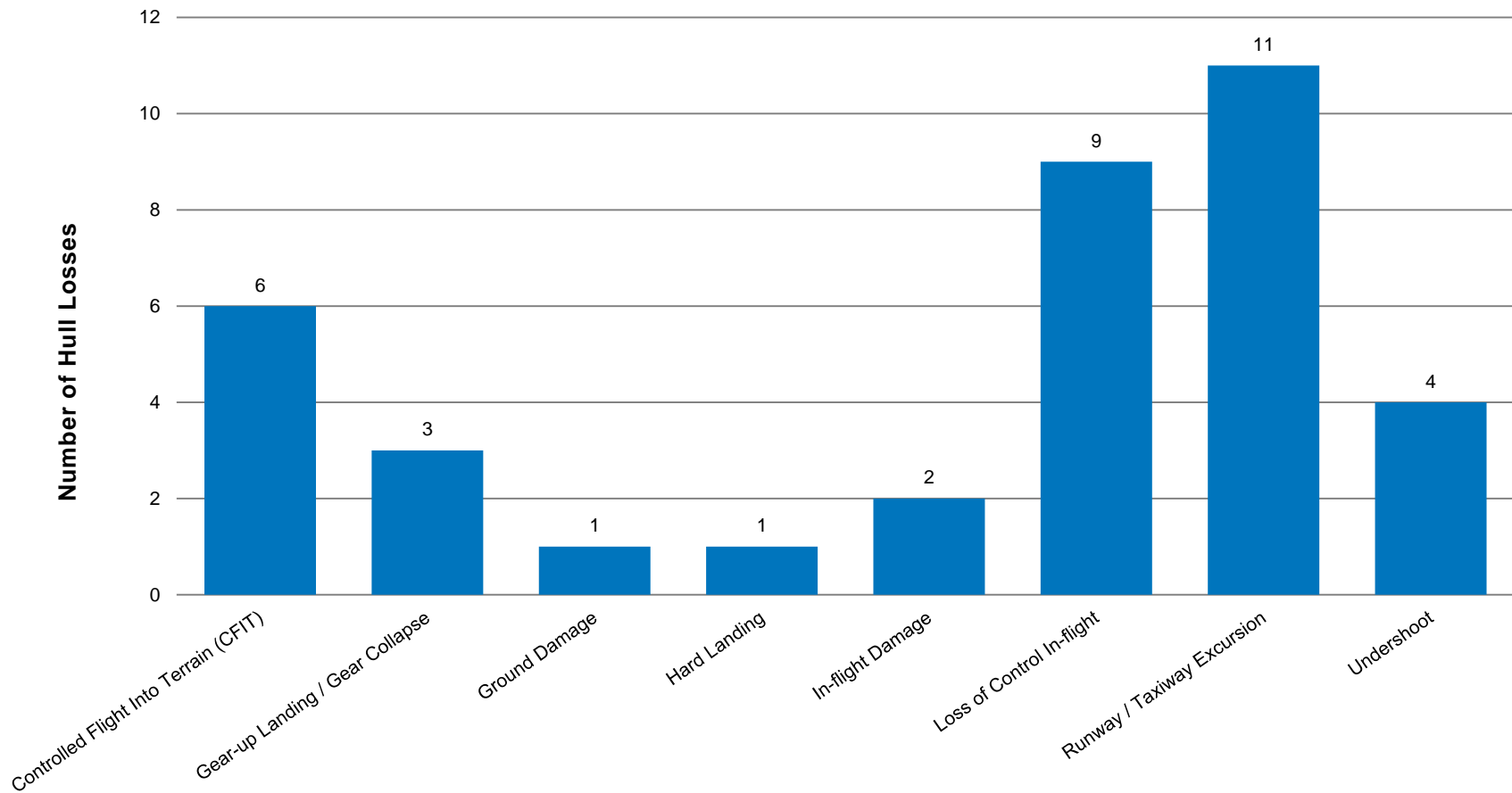
## Accident Categories Comparison World Wide (2008-2012)



# LATAM/CAR Hull Losses - IATA



LATAM/CAR Hull Losses 2008-2012



# RE & LOC-I - IATA



Runway Excursions	2008	2009	2010	2011	2012
Worldwide	28	23	20	17	21
LATAM/CAR % of Total Accidents	26%	26%	21%	18%	28%
LATAM/CAR Runway Excursions	6	4	2	2	2
NATNAM % of Total Accidents	25%	13%	10%	18%	10%
NATNAM	7	3	2	3	2

LOC-I	2008	2009	2010	2011	2012
LATAM/CAR (% of total accidents)	5%	10%	33%	13%	17%
NATNAM (% of total accidents)	12%	7%	6%	0%	0%

# Contributing Factors - IATA



## Top Contributing Factors for LATAM/CAR Region Accidents - 2012

Latent Conditions (deficiencies in...)	Threats	Flight Crew Errors (relating to...)	Undesired Aircraft States (UAS)
<p><b>25%</b> Maintenance operations: Maintenance ops: SOPs &amp; checking (100% of cases) Maintenance ops: training systems (100% of cases)</p> <p><b>25%</b> Safety management</p>	<p><b>Environmental</b></p> <p><b>25%</b> Airport facilities: Contaminated runway/taxiway – poor braking action</p> <p><b>25%</b> Ground-based nav aids malfunctioning or not available</p> <p><b>Airline</b></p> <p><b>50%</b> Aircraft malfunction: Brakes (50% of cases) Gear/tire (50% of cases)</p>	<p>None noted.</p>	<p><b>25%</b> Unstable approach</p> <p><b>25%</b> Vertical/lateral/speed deviation</p> <p><b>25%</b> Continued landing after unstable approach</p> <p><b>25%</b> Long/floated/bounced/firm/off-center/crabbed landing</p> <p><b>25%</b> Loss of aircraft control while on the ground</p>

# Summary



- LOC-I, RE & CFIT are the top fatal accident categories
- RE have many other precursors than unstable approach
- LOC-I ICAO is working in the issue (LOCART)
- Hazard identification and risk management are important tools available
- Safety data and analysis is key
- Deficiencies in airport facilities, wildlife, NAV aids are contributing factors for accidents in LATAM/CAR
- States must comply with ICAO SARPs and eliminate deficiencies
- ICAO is ready to assist



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Central American  
and Caribbean  
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Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montreal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
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Bangkok

**Thank You**

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