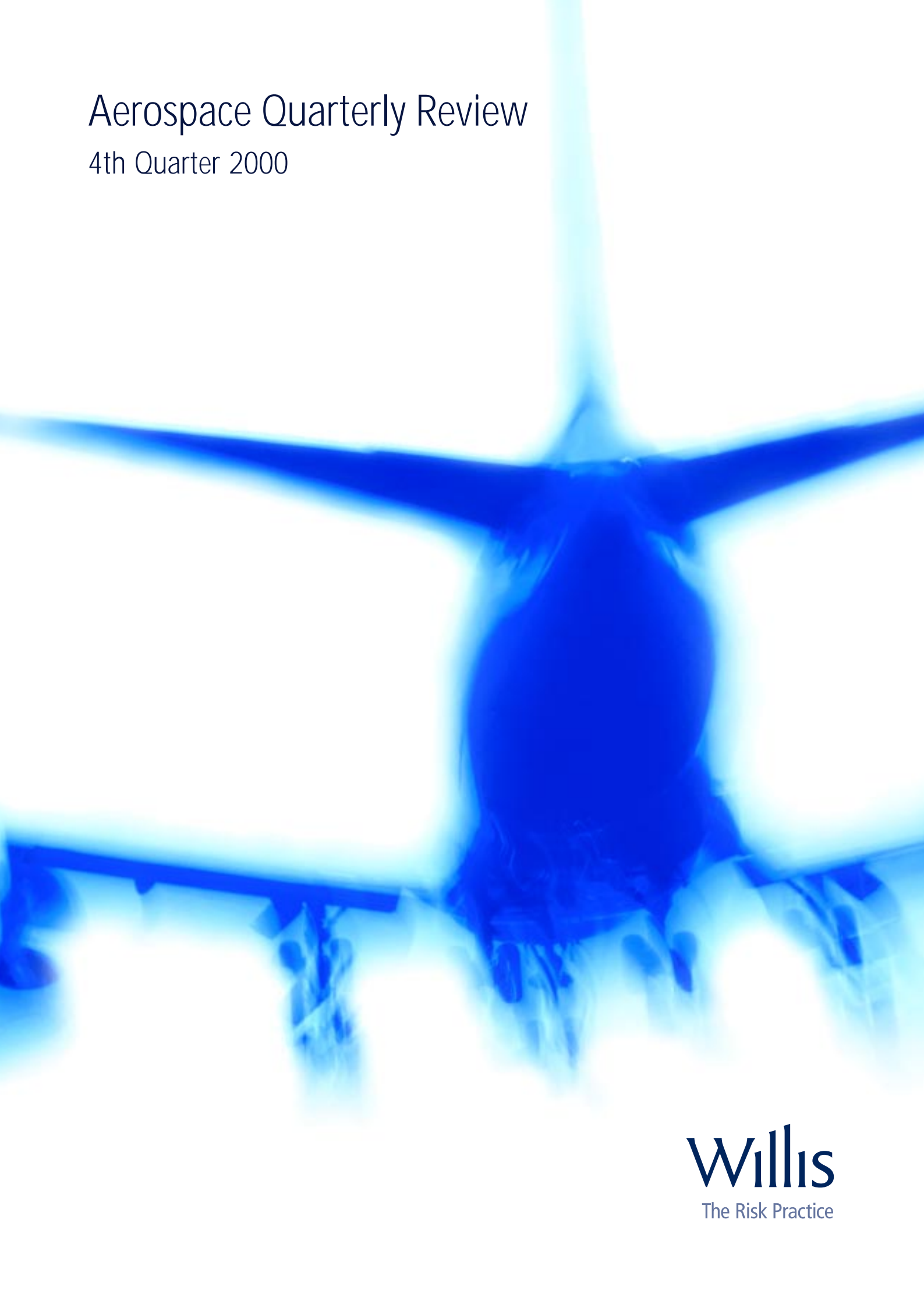


# Aerospace Quarterly Review

4th Quarter 2000



**Willis**  
The Risk Practice

## Executive Summary



### Airline Hull & Liability

The final quarter of 2000 saw the arrival of the “hard” market, with average rate increases for hull over 40% and for liability at nearly 30%. This reflects, to a certain extent the number of airlines that renewed having suffered a major loss during their expiring policy. Those airlines renewing without major losses were still subject to rate increases in excess of 20%

### Airline Losses

The final quarter of 2000 saw the continuing improvement in the number of major losses. This improved record was, however, overshadowed by the Singapore Airlines loss.

### Hull War & Allied Perils

The final quarter of 2000 saw the war underwriters follow the fortunes of the all risk underwriters with rate increases of 25% being set as a minimum. There was also a move by underwriters to remove certain coverages that had been added to war policies during the soft market, such as loss of use, which following the Royal Jordanian A320 incident on the 5<sup>th</sup> July 2000, provided the largest loss to war underwriters for the year.

## Airline Hull & Liability

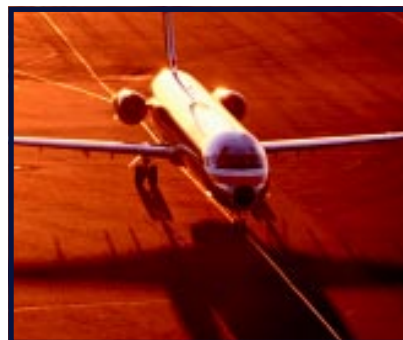
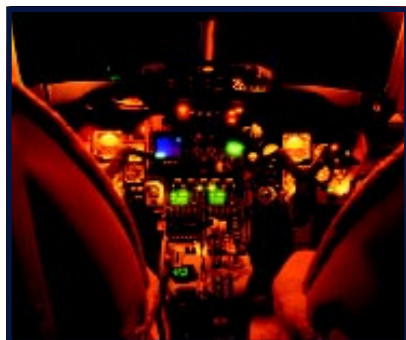
### Airlines renewing in the 4<sup>th</sup> Quarter 2000

	Inception	Broker	Comment
<b>Africa</b>			
Air Algerie	1 <sup>st</sup> Oct	UIB	
Air Gabon	1 <sup>st</sup> Oct	Willis	Fleet Value below \$100m for 2000
Cameroon	1 <sup>st</sup> Oct	Willis	
RAM/Tunis Air	1 <sup>st</sup> Oct	AON	
Das Air	1 <sup>st</sup> Nov	Marsh	
South African	1 <sup>st</sup> Nov	AON	
Egyptair	15 <sup>th</sup> Nov	Willis	
Air Afrique	1 <sup>st</sup> Dec	Marsh	
Sudan Airways	04 <sup>th</sup> Dec	Willis	Fleet Value below \$100m for 2000

	Inception	Broker	Comment
<b>Asia Pacific</b>			
CAAC	1 <sup>st</sup> Oct	Marsh/Willis	Long term programme
China Airlines	1 <sup>st</sup> Oct	AON	
FAT/TransAsia	1 <sup>st</sup> Oct	Willis	Combined programme for FAT and TransAsia
Thai Airways	1 <sup>st</sup> Oct	Marsh/Willis	
Air NZ/Ansett	1 <sup>st</sup> Nov	Willis	Long term programme
Cathay Pacific	1 <sup>st</sup> Nov	Marsh	Long term programme
Korean	1 <sup>st</sup> Nov	Marsh	
Qantas	1 <sup>st</sup> Nov	Heath Lambert	Long term programme
Singapore	1 <sup>st</sup> Nov	Willis/AON	Long term programme
Sultan of Brunei	4 <sup>th</sup> Nov	Willis	
U Land	15 <sup>th</sup> Nov	UIB	Airline ceased operations
Air Pacific	1 <sup>st</sup> Dec	Heath Lambert	
ANA	1 <sup>st</sup> Dec	Willis	
Asiana Airlines	1 <sup>st</sup> Dec	Willis/AON	
Garuda	1 <sup>st</sup> Dec	AON/Marsh	
JAL	1 <sup>st</sup> Dec	Willis	
JAS	1 <sup>st</sup> Dec	Willis	
Malaysia	1 <sup>st</sup> Dec	AON	
Hokkaido	4 <sup>th</sup> Dec	Willis	
Philippine	15 <sup>th</sup> Dec	Willis/Marsh	
Mandarin Airlines	21 <sup>st</sup> Dec	AON	
Pertamina	31 <sup>st</sup> Dec	AON/Heath Lambert	

	Inception	Broker	Comment
<b>Europe</b>			
Air Azzura	1 <sup>st</sup> Oct	Marsh	Off slip to Air Malta
Air Malta	1 <sup>st</sup> Oct	Marsh	
British Airways	1 <sup>st</sup> Oct	Marsh	Long term programme
MK Aircargo	1 <sup>st</sup> Oct	Marsh	
Tarom	1 <sup>st</sup> Oct	Marsh	
Olympic	21 <sup>st</sup> Oct	Heath Lambert	
JAT	24 <sup>th</sup> Oct	AON	
Air 2000	1 <sup>st</sup> Nov	Willis	
Air Europa	1 <sup>st</sup> Nov	Willis	
Cyprus Airways	1 <sup>st</sup> Nov	Marsh	
DHL International	1 <sup>st</sup> Nov	AON	Cancel and rewrite of March 2000 programme
Maersk Air	1 <sup>st</sup> Nov	Marsh	
Qualiflyer	1 <sup>st</sup> Nov	Marsh/Willis	
Schreiner	1 <sup>st</sup> Nov	AON	
Proteus	4 <sup>th</sup> Nov	Marsh	
Balkan Bulgarian	7 <sup>th</sup> Nov	Marsh	
Air Atlanta Icelandic	29 <sup>th</sup> Nov	Marsh	
Air Europe Spa	30 <sup>th</sup> Nov	Willis	Long term programme
Aegean Aviation	1 <sup>st</sup> Dec	HSBC	
Air France	1 <sup>st</sup> Dec	Heath Lambert	Long term programme
Air Nostrum	1 <sup>st</sup> Dec	Willis	
Alitalia	1 <sup>st</sup> Dec	Willis/AON	Long term programme
Austrian/BM/SAS	1 <sup>st</sup> Dec	AON	New programme, KSAF split up this year
British European	1 <sup>st</sup> Dec	Willis	Formerly Jersey European Airways
Finnair	1 <sup>st</sup> Dec	AON	New programme, KSAF split up this year
Gill Aviation	1 <sup>st</sup> Dec	Willis	
Iberia	1 <sup>st</sup> Dec	AON	
KLM	1 <sup>st</sup> Dec	Marsh	New programme, KSAF split up this year
Lufthansa	1 <sup>st</sup> Dec	Willis	
Malev	1 <sup>st</sup> Dec	Willis	
Sabre Airways	9 <sup>th</sup> Dec	Heath Lambert	
City Bird	10 <sup>th</sup> Dec	AON	
Regionale Airlines	18 <sup>th</sup> Dec	Willis	Long term programme
Regionale Airlines 2	18 <sup>th</sup> Dec	Willis	Long term programme
Azerbaijan	22 <sup>nd</sup> Dec	Heath Lambert	Long term programme

	Inception	Broker	Comment
<b>Middle East &amp; India</b>			
Indian Airlines	1 <sup>st</sup> Oct	Marsh	
Syrian Arab	1 <sup>st</sup> Oct	UIB	
PIA	15 <sup>th</sup> Oct	AON/Marsh	
Amiri Flight	1 <sup>st</sup> Nov	Willis	
GCC	16 <sup>th</sup> Nov	Willis/Marsh	
Royal Jordanian	1 <sup>st</sup> Dec	Marsh/Heath Lambert	
Sultan of Oman	1 <sup>st</sup> Dec	Willis	
EI Al	30 <sup>th</sup> Dec	AON	
<b>North America</b>			
Amtran	1 <sup>st</sup> Oct	AON	
Great Lakes	1 <sup>st</sup> Oct	AON	
United Airlines	1 <sup>st</sup> Oct	Marsh	AON retail broker in the US
Midway	19 <sup>th</sup> Oct	AON	
Skyservice	24 <sup>th</sup> Oct	AON	
Aloha	1 <sup>st</sup> Nov	Marsh	
Chautauqua	1 <sup>st</sup> Nov	Heath Lambert	
DHL Airways	1 <sup>st</sup> Nov	AON	Now placed as Off slip to DHL International
Hawaiian Air	1 <sup>st</sup> Nov	Alexander Forbes	
Vanguard	1 <sup>st</sup> Nov	AON	
Express One	5 <sup>th</sup> Nov	AON	
Southern Air	13 <sup>th</sup> Nov	Marsh	
Alaska Airlines	15 <sup>th</sup> Nov	Marsh	
North American	15 <sup>th</sup> Nov	AON	
UPS	16 <sup>th</sup> Nov	Willis	Long term programme
Canada 3000	30 <sup>th</sup> Nov	Willis	
Airborne Express	1 <sup>st</sup> Dec	Alexander Forbes	
American Airlines	1 <sup>st</sup> Dec	AON	
Jetblue	1 <sup>st</sup> Dec	AON	



	Inception	Broker	Comment
Sun Country	1 <sup>st</sup> Dec	Marsh	Long term programme
TWA	1 <sup>st</sup> Dec	Marsh	
World Airways	1 <sup>st</sup> Dec	AON	
Air Transat	14 <sup>th</sup> Dec	Willis	
Air Canada	15 <sup>th</sup> Dec	Marsh	
America West	15 <sup>th</sup> Dec	Willis	
NWA/COA	15 <sup>th</sup> Dec	AON/Willis	
Southwest Airlines	15 <sup>th</sup> Dec	Willis	
Delta Air Lines	21 <sup>st</sup> Dec	AON	
Midwest Exp	22 <sup>nd</sup> Dec	Marsh	
Air Wisconsin	29 <sup>th</sup> Dec	AON	
Airtran	31 <sup>st</sup> Dec	Willis	
<b>South America</b>			
BWIA	1 <sup>st</sup> Nov	Heath Lambert	
Varig	1 <sup>st</sup> Nov	AON	
LAN Chile	17 <sup>th</sup> Nov	Marsh	
ACES	18 <sup>th</sup> Nov	Marsh	
Transbrasil	24 <sup>th</sup> Nov	Heath Lambert	
Aero.Arg/Austral	1 <sup>st</sup> Dec	Marsh	
Avianca	1 <sup>st</sup> Dec	Marsh	
TAM	1 <sup>st</sup> Dec	Marsh	
Allegro	8 <sup>th</sup> Dec	Marsh	
Copa	15 <sup>th</sup> Dec	Willis	

## Renewal Analysis

This analysis reflects all renewals that took place within the specified period. Airlines that have not renewed in 2000 either due to inclusion within a group programme or cessation of operations, have been included with 1999 but not 2000. The figures attempt to show total exposure and premium by region for each specific month. They do not attempt to show a rating or premium trend.

*(Previous figures may change as more information is gathered).*

### Regional Analysis

Average Fleet Values	4 <sup>th</sup> Quarter 2000		Year to date	
	US\$ millions	% Change	US\$ millions	% Change
Africa	8,043	+16.6	10,900	+14.0
Asia Pacific	125,081	+4.7	133,053	+4.4
Europe	119,994	+5.4	151,414	+6.1
Middle East & India	23,520	+6.4	30,308	+6.8
North America	155,588	+11.9	193,612	+12.3
South America	13,128	+8.5	21,853	+7.9
<b>Total for 4<sup>th</sup> Quarter 2000</b>	<b>445,354</b>	<b>+7.7</b>	<b>541,140</b>	<b>+8.1</b>

Revenue Passenger Kilometres	4 <sup>th</sup> Quarter 2000		Year to date	
	Millions	% Change	Millions	% Change
Africa	47,976	+4.2	60,568	+5.2
Asia Pacific	710,412	+7.6	751,297	+8.2
Europe	802,680	+5.5	1,001,838	+6.2
Middle East & India	109,729	+9.5	148,151	+8.6
North America	1,209,593	+9.4	1,328,471	+9.6
South America	87,240	+6.9	142,971	+9.5
<b>Total for 4<sup>th</sup> Quarter 2000</b>	<b>2,967,630</b>	<b>+7.7</b>	<b>3,433,296</b>	<b>+8.2</b>

Gross Premium	4 <sup>th</sup> Quarter 2000		Year to date	
	US\$	% Change	US\$	% Change
Africa	37,833,620	+83.0	57,567,170	+57.6
Asia Pacific	324,355,953	+5.9	347,703,962	+7.0
Europe	214,877,767	+42.2	324,508,405	+32.8
Middle East & India	48,405,954	+64.5	80,961,003	+47.2
North America	287,496,899	+33.1	390,487,726	+28.1
South America	38,232,304	+33.0	76,439,602	+25.6
<b>Total for 4<sup>th</sup> Quarter 2000</b>	<b>951,202,497</b>	<b>+26.5</b>	<b>1,277,667,867</b>	<b>+24.5</b>



## Premium Trend Analysis

This analysis excludes any airline that has renewed under a group programme for both years, but includes all long-term programmes, new airline operations and airlines whose AFV did not previously exceed US\$100 million.

*(Previous figures may change as more information is gathered).*

	Gross Premium (US\$)		% Change
	1999	2000	
<b>1<sup>st</sup> Quarter</b>	<b>46,601,947</b>	<b>51,046,348</b>	<b>+9.5</b>
<b>2<sup>nd</sup> Quarter</b>	<b>111,776,799</b>	<b>132,100,653</b>	<b>+18.2</b>
<b>3<sup>rd</sup> Quarter</b>	<b>116,017,327</b>	<b>143,318,369</b>	<b>+23.5</b>
October	209,884,343	233,906,182	+11.4
November	238,865,535	323,168,839	+35.3
December	303,485,808	394,127,477	+29.9
<b>4<sup>th</sup> Quarter</b>	<b>752,235,686</b>	<b>951,202,497</b>	<b>+26.5</b>
<b>Year to Date</b>	<b>1,026,631,760</b>	<b>1,277,667,867</b>	<b>+24.5</b>

## Willis Rating Trend

This analysis excludes any re-signing of long term programmes, any new airline operations and any airline whose AFV did not previously exceed US\$100 million, as well as any airline that has renewed under a group programme. The liability rate movement is based purely on airlines that are rated on a RPK/M basis for both years.

*(Previous figures may change as more information is gathered).*

### Hull Rates % Change

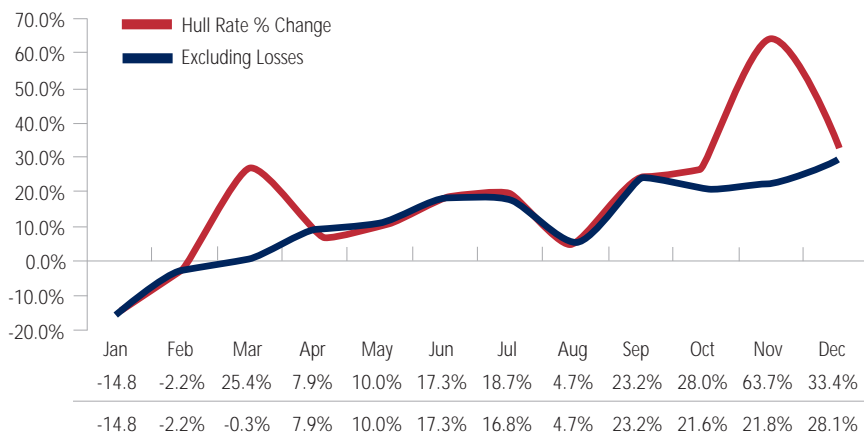
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Africa</b>	-	-	-	+10.8	+24.4	+18.0	+12.9	-	+21.7	+13.5	+132.4	+53.3
<b>Asia Pacific</b>	+10.2	-	+15.1	+12.3	-	+23.3	+20.6	+5.5	-	+17.3	+4.5	+27.4
<b>Europe</b>	-12.2	-7.8	+0.3	+2.7	+9.4	+25.1	+23.5	+22.9	-	+28.4	+64.0	+47.8
<b>Mid East &amp; India</b>	-34.5	+0.0	+113.7	+14.3	-	-	+4.8	+17.9	+9.9	+69.4	+78.8	+15.4
<b>North America</b>	-22.0	-	-28.8	+1.7	+4.6	+2.9	-10.1	-0.6	+25.7	+22.7	+31.9	+34.2
<b>South America</b>	-	-5.0	-	+15.2	-4.1	+10.6	+5.7	+4.1	+10.8	-	+35.2	+18.6

### Liability Rates % Change

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Africa</b>	-	-	-	-2.4	+17.7	+0.4	+18.2	-	-	+9.8	+69.8	+42.5
<b>Asia Pacific</b>	-5.4	-	-	+18.5	-	+18.3	+22.9	+4.1	-	+17.3	-	+20.0
<b>Europe</b>	+4.4	-	+1.1	+7.6	+8.6	+21.8	+27.6	+9.7	-	+23.1	+86.9	+49.8
<b>Mid East &amp; India</b>	-45.6	-	+38.6	+15.8	-	-	+4.5	+22.0	-	+18.4	+93.9	+28.0
<b>North America</b>	-11.3	-	+0.0	-5.6	-12.9	-1.7	-	+1.0	+2.0	+21.2	+47.3	+11.9
<b>South America</b>	-	-5.0	-	+15.2	+6.6	+12.4	+7.1	+17.2	+34.1	-	+27.6	+14.9



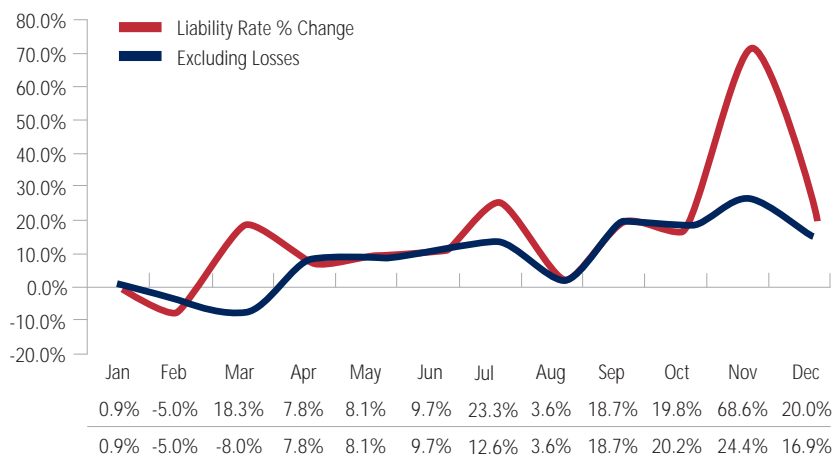
### Hull Rate Monthly % Change



The charts demonstrate how rates have continued to harden in the final quarter of the year and reflect the trend of increasing rates since the beginning of the second quarter.

The charts also demonstrate how airlines that have suffered significant losses on their expiring programmes have been targeted by underwriters for above average increases in rates.

### Liability Rate Monthly % Change



## Airline Losses

Whereas the third quarter of the year 2000 will primarily be remembered for the loss of the Air France Concorde aircraft, the final quarter of the year will inevitably be associated with the catastrophic Singapore Airlines Boeing 747-400 loss on take off at Taipei on the 31<sup>st</sup> October. But for this incident, the fourth quarter of the year 2000 would have gone on record as not only the safest period of year but also by far the least costly for insurers.

In purely physical terms, the last quarter of the year continued the consistently downward trend in the numbers of major airline losses that has been evident since the second quarter of the year. The last period saw a total of fifteen incidents of which only three resulted in a loss in excess of US\$10 Million. This result represents an improvement over the preceding quarter in terms of actual numbers of losses, whilst maintaining a steady number of losses in excess of the US\$10 million mark. Unfortunately, whilst the quarter displayed an improvement in the actual numbers of events, the large anticipated reserve resulting from the loss of the Singapore Airlines 747 will likely contribute to a total reserve figure nearly US\$100 million greater than that of the third quarter.

Landing incidents have proven the dominant loss experience during the fourth quarter with two of the three incidents resulting in losses in excess of US\$10 million occurring during this phase of flight. Overall, eleven of the fifteen events occurring during this period occurred during the landing phase, the majority during poor weather conditions.

### Airline Loss Analysis

- The final quarter of 2000 has shown a steady in terms of numbers of losses in excess of US\$10 million with three incidents, the same number as the preceding period. This compares to the second quarter's six incidents and the first quarter's ten incidents.
- The current total hull and liability reserve figure for the final quarter of 2000 is approximately 87% of the first quarter's total figure at an anticipated US\$379 million. With the total loss figure for the year 2000 currently standing at US\$1,404,908,979, the fourth quarter currently represents 27% of the annual total.
- 83 people lost their lives in the final period's major accidents compared with 323 in the final quarter of 1999. This figure represents the lowest number of fatalities for any of the four quarters of the year.
- 5 jet aircraft and 2 turboprop aircraft were declared total losses during the quarter.



## Major Loss Comparison

(Major losses deemed to be any loss in excess of US\$10 million)

	Number of Losses	Difference	Fatalities	Difference	Reserves (US Dollars millions)
Africa & Middle East	1	+0	0	-143	45.0
Asia Pacific	1	+1	83	+83	124.0 + TBA
Europe	1	-1	0	-109	10.0
North America	0	0	0	0	0.0
South America	0	0	0	0	0.0
<b>World-wide</b>	<b>3</b>	<b>0</b>	<b>83</b>	<b>-169</b>	<b>169.0 + TBA</b>

	Date of Loss	Aircraft Type	Fatalities	Location	Reserve US\$	Severity
<b>Africa</b>						
Centrafrican Airlines	6 <sup>th</sup> Oct	An-72	Nil	Luzamba	900,000	Total Loss
	<i>Aircraft abandoned a long and fast landing before conducting a go-around manoeuvre. During the second approach it would appear that the crew failed to extend the undercarriage and the aircraft subsequently made a belly landing. Upon touchdown, the aircraft slid for approximately 350 metres sustaining substantial damage.</i>					
Cameroon Airlines	5 <sup>th</sup> Nov	B747-200	Nil	Paris	45,000,000	Total Loss
	<i>Aircraft departed a wet runway 09R at Paris Charles de Gaulle airport on landing in poor weather conditions after a flight from Douala. The aircraft's nose undercarriage detached from its mountings after sinking into soft ground and the aircraft came to rest with its forward fuselage resting on the ground having sustained substantial damage.</i>					
Ghana Airways	13 <sup>th</sup> Nov	DC-9-51	Nil	Conakry	5,000,000	Total Loss
	<i>Aircraft landed at Conakry with its undercarriage retracted following flight GH530 from Accra via Abidjan. The aircraft suffered additional damage during the operation to recover it from the runway.</i>					

	Date of Loss	Aircraft Type	Fatalities	Location	Reserve US\$	Severity
<b>Asia Pacific</b>						
Royal Nepal Airlines	2 <sup>nd</sup> Oct	B757	Nil	Kathmandu	2,500,000	Partial Loss
<i>Suffered severe engine failure shortly after take off.</i>						
Pakistan International	8 <sup>th</sup> Oct	F.27	Nil	Lahore	750,000	Partial Loss
<i>Starboard main undercarriage failed to correctly extend on approach to Lahore. The crew was forced to land the aircraft with a partially retracted undercarriage, which subsequently collapsed on touchdown.</i>						
Singapore Airlines	31 <sup>st</sup> Oct	B747-400	83	Taipei	124,000,000 + TBA	Total Loss
<i>Struck a number of concrete obstructions and mechanical construction vehicles shortly after take off decision speed and was destroyed. It would appear that the aircraft had in error lined up on runway 05R at Taipei, which had been closed to all but taxiing traffic due to ongoing maintenance work. Despite the fact that the incident occurred at night and during poor weather conditions it has been reported that runway 05R, the inactive runway, was correctly lit with green taxiway lighting rather than the lighting configuration that would be employed for an active runway in order to avoid such confusion.</i>						
Thai Airways	24 <sup>th</sup> Nov	B737-400	Nil	Bangkok	7,500,000	Partial Loss
<i>Suffered a heavy landing, became momentarily airborne before touching down heavily on its nose undercarriage. On touchdown, the nose gear failed and collapsed. Aircraft was operating a service from Ho-Chi-Minh City, Vietnam.</i>						
<b>Europe</b>						
CityFlyer Express	10 <sup>th</sup> Oct	ATR72	Nil	Bournemouth	5,000,000	Partial Loss
<i>Aircraft diverted to Bournemouth during a flight to Jersey due to poor weather conditions. On landing, the ATR 'bounced' several times, following which it touched down heavily on its nose undercarriage which subsequently failed allowing the forward fuselage to impact the runway surface.</i>						
SAS	22 <sup>nd</sup> Oct	DHC-8-400	Nil	Copenhagen	750,000	Partial Loss
<i>Suffered a tailstrike on landing following a flight from Hanover. Aircraft suffered damage to the rear ventral fuselage.</i>						
Futura International	30 <sup>th</sup> Nov	B737-800	Nil	Shannon	10,000,000	Partial Loss
<i>Landed heavily on its nose undercarriage whilst landing in strong crosswind conditions following a flight from Lanzarote. The nose undercarriage subsequently failed and collapsed allowing the aircraft to skid down the runway on its forward ventral fuselage. Severe damage was sustained to both engines and the ventral fuselage.</i>						



Date of Loss	Aircraft Type	Fatalities	Location	Reserve US\$	Severity
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### Middle East

No reported losses over this period.

### North America

Air Spray	16 <sup>th</sup> Oct	L-188 Electra	Nil	Red Deer	2,000,000	Total Loss
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*Aircraft destroyed in a hangar fire, apparently started during a de-fuelling operation being conducted on another aircraft.*

West Coast Air	1 <sup>st</sup> Nov	DHC-6	Nil	Vancouver	650,000	Total Loss
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*The float equipped Twin Otter suffered an engine failure during the initial climb phase shortly after take off. The aircraft rapidly lost altitude, the starboard wing dipped and struck the surface of the water.*

Hawaiian Air	23 <sup>rd</sup> Dec	DC-10-10	Nil	Faa	5,000,000	Partial Loss
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*Overran the runway on landing at Papeete's Faa Airport following a flight from Honolulu. The aircraft came to a halt with the nose undercarriage and the forward ventral fuselage partially submerged in a lagoon situated at the end of the runway.*

Atlantic Coast Airlines	29 <sup>th</sup> Dec	Jetstream 41	Nil	Charlottesville	-	Partial Loss
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*After failing to slow sufficiently on landing, the crew steered the aircraft off the runway to avoid an overrun. The aircraft was however travelling too rapidly to be able to complete the turn, overran the taxiway and ran down a nearby embankment sustaining substantial damage.*

### South America

Aeromexico	6 <sup>th</sup> Oct	DC-9-31	4	Reynosa	4,000,000	Total Loss
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*Landed long during poor weather conditions, overshot the end of the runway and ran a further 500 metres across disused land prior to striking a number of dwellings and an 8 ft. embankment situated outside of the airport perimeter. The aircraft was operating a service from Mexico City and landed during heavy rain conditions. The four persons fatally injured in the incident were all residents of the settlement at the airport perimeter.*

## Regional Analysis

Undoubtedly, the Asia Pacific region became the focus for attention during the last period of the year 2000. Having enjoyed a relatively stable third quarter of the year, recording three losses, none in excess of US\$10 million, the catastrophic loss of the Singapore Airlines Boeing 747 in Taipei at the end of October, in which 83 people lost their lives, turned the fortunes of the region on its head. With a hull value of US\$124 million and an as yet to be determined liability reserve, the event will very likely end up representing the largest single loss of the year, and at this stage would appear to be a consequence of human error. Each of the remaining three incidents also occurred during the dynamic phases of flight with both the Thai Airways incident and the Pakistan International incident joining the long list of losses occurring during the landing phase. The remaining incident, involving a Royal Nepal Airlines Boeing 757 occurred during the initial climb phase shortly after take off.

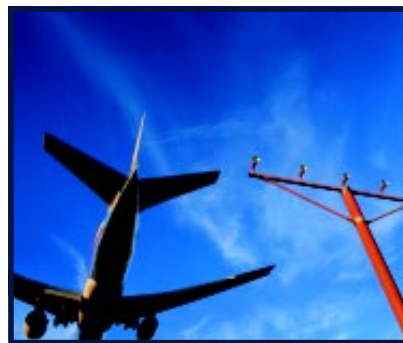
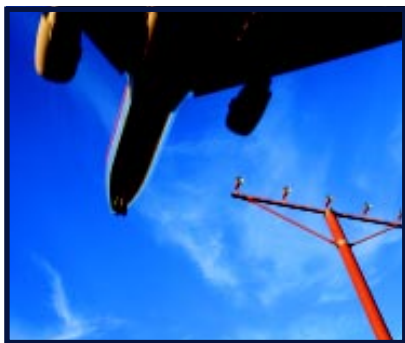
After experiencing an extremely quiet third quarter in which it suffered no losses of any note, the African region recorded the second largest hull incident of the period with the loss of a Cameroon Airlines Boeing 747-200 aircraft during landing in poor weather conditions at Paris Charles de Gaulle airport. Fortunately, despite the severe damage sustained by the aircraft, all 183 passengers and 16 crew aboard survived the incident with only minor injuries being sustained. The loss of a Centraficain Antonov An-72 aircraft at Luzamba in Angola and November's loss of a Ghana Airways Boeing DC-9-51 twinjet rounded off the loss experience for the African region during the period.

The European region sustained three losses during the period including a single incident resulting in a reserve at the US\$10 million mark, the November loss of a Futura International Boeing 737-800, once again during the landing phase of operation. There were no losses involving fatalities in the region during the last quarter of the year, a welcome relief following the events of the previous quarter. South and Central America recorded a single incident during the period, the total loss of an Aeromexico Boeing DC-9 at Reynosa, Mexico on the 6<sup>th</sup> October.

The North American region, whilst suffering four incidents during the final quarter continued its overall improvement in fortunes, again recording no fatalities and no major losses exceeding US\$10 million.

The Middle East and Indian region suffered no major losses at all during the period.





## Incident Analysis

Environmental conditions and the landing phase of flight both played significant roles in the majority of the loss events experienced by the industry during this last period of the year 2000.

Nearly 70% of the incidents recorded during the period occurred during the landing phase of flight, the most serious of these in reserve terms at least, involving the loss of the Cameroon Airlines Boeing 747-200 at Paris Charles de Gaulle. The aircraft was conducting an instrument approach to Paris' wet runway 09 right at night during poor weather conditions, which included strong, gusting winds and heavy rain. Despite the efforts of the crew, the aircraft was unable to stop and overran the runway onto a soft grass verge, following which the undercarriage detached. Both the Aeromexico DC-9 incident in early October and the Futura International Boeing 737-800 incident at the end of the following month were also notable examples in which poor weather conditions during landing played a significant role in the resulting losses.

Inevitably, the issue of pilot or cockpit crew error has again been brought sharply into focus during the period, with the case of the loss of the Singapore Airlines Boeing 747-400 at Taipei which claimed the lives of 83 passengers and crew members the obvious example. Whilst both local and international authorities continue to investigate the circumstances leading up to the loss, initial findings would suggest that it was most likely an error on the part of the flight crew in apparently mistaking a

runway closed for maintenance and construction purposes for the active runway. As the aircraft accelerated past the 'V1' take off decision speed it struck a number of mechanical construction vehicles along with a concrete barrier. Both the losses of the Ghana Airways DC-9-51 aircraft at Conakry, and the Centraficain An-72 transport at Luzamba, Angola would also appear to represent losses involving pilot error, with both aircraft landing with apparently serviceable landing gear retracted.

Aircraft or equipment technical failures accounted for three losses in the overall fourth quarter experience. Two of these incidents were attributable to powerplant rather than airframe failures, with both October's Royal Nepal Boeing 757 incident and what could have been a far more serious event, the loss of a West Coast Air Twin Otter shortly after take off in British Columbia examples of this. The critical importance of regular and thorough aircraft inspection was again reinforced through the Pakistan International Fokker 27 incident on the 8<sup>th</sup> October at Lahore. It was only whilst lining up for their final approach to the airport and extending the undercarriage that a broken strut assembly, quite possibly sustained during the previous landing on the aircraft's outbound leg, became evident to the crew. Fortunately, the skill of the aircraft's pilot ensured that the aircraft was landed safely without injury to those on board. However, during the landing the aircraft suffered extensive damage, a situation that could likely have been prevented had the gear defect been noticed prior to flight.

## Conclusion

In pure terms of numbers of losses, the final quarter of the year 2000 resulted in the industry's most encouraging performance of the year with 15 significant airline type losses occurring during the period, also achieving the lowest loss of life throughout the year. However, like the preceding quarter, this pleasing overall improvement in the operational loss experience was tainted by a single large loss event, which may in time come to represent fully 85% of the period's hull & liability reserve and has already recorded all of the fatalities. Without this event, the fourth quarter of the year 2000 would not only have gone on record as the safest and least expensive period of the year in regard to the numbers of incidents and loss of life, but also in financial terms.

## Forecast



It is difficult to predict what underwriters intentions are for the 2001 underwriting year, as this really does not begin until the final quarter, when 70% of the world's airlines renew their programmes. As happened in 2000, the "hard" market did not really start until the 1<sup>st</sup> October. This will likely happen once again in 2001.

This does not mean that any airline renewing in the first three quarters will escape underwriters attention; they will receive increases in rates and premium along the lines that the airlines renewing in the final quarter of 2000 received.

This is being reflected in the renewals in January 2001 with average rate increases of 36% for hull and 21% for liabilities and with an average increase in premium of over 50%.

While there is little doubt that rates and premiums will continue to increase in 2001, with underwriters looking to break the US\$2 billion premium barrier. There are other issues to be taken into account.

Underwriters have become more stringent over premium settlement due dates, with many underwriters giving notice of cancellation if their premium is not received on time. This is a direct result of cash flow problems that certain underwriters suffered in 2000, with high valued hull losses being paid out rapidly, but the majority of their premium being on a deferred payment basis.

Certain underwriters are also rumoured to be considering increasing the current deductible levels. The current levels of deductibles have been in place since 1984 when a new B747 was valued at around US\$100 million. With the new generation of aircraft and indeed engines, values have soared and underwriters no longer believe that the current levels of deductibles are valid as they have seen attritional hull losses increase substantially. Whether or not an increase in the levels of deductibles will restrict rate increases is doubtful, as underwriters are under enormous pressure from their capital providers to make 2001 the first profitable year since 1997.

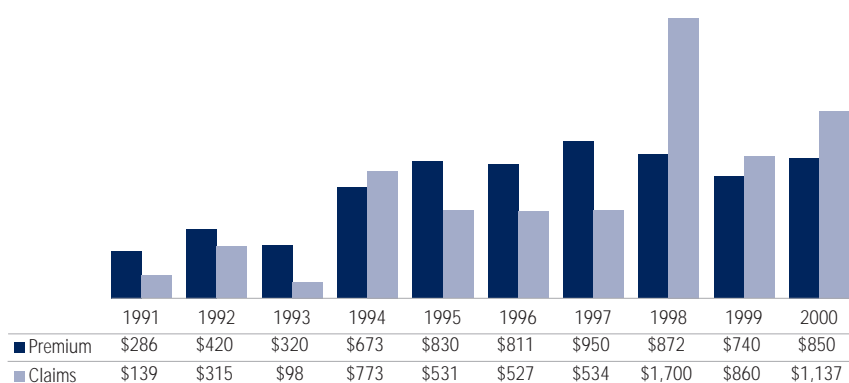
## Space Sector Review

Despite the fact that there was only one launch vehicle failure in the second half of 2000, claims significantly exceeded premium for the third consecutive year in the space insurance market. With only two launch vehicle failures, and the consequential losses of the ICO-F1 and Quickbird 1 satellites, 2000 represented a better than average year in terms of

the annual number of launch vehicle failures over the last five years. However, the incurred claims of the ICO-F1 and Quickbird 1 losses accounted for less than 50% of the total incurred claims for the year. Following the trend of the last two years, the space insurance market was again blighted by a significant number of in-orbit anomalies and

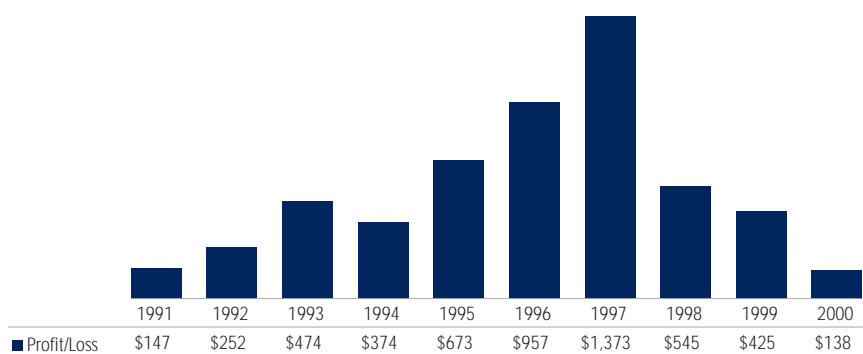
failures, particularly in the second half of the year. The total loss of the Solidaridad-1 satellite, together with claims on ACeS Garuda 1, Insat 3B, Galaxy VII, and reportedly TDRS-H, accounted for over 55% of the claims figure for 2000 of over US\$1.1 billion. Premium income for the year was estimated at US\$850 million.

### Historical Premium and Claims (US\$ millions)



The combined losses of 1998, 1999 and 2000 total in excess of US\$3.7 billion, with premium for the same period calculated at approximately US\$2.5 billion. Eradication of insurer's credit balance is now complete with insurer's cumulative balance now in deficit for the first time in a decade.

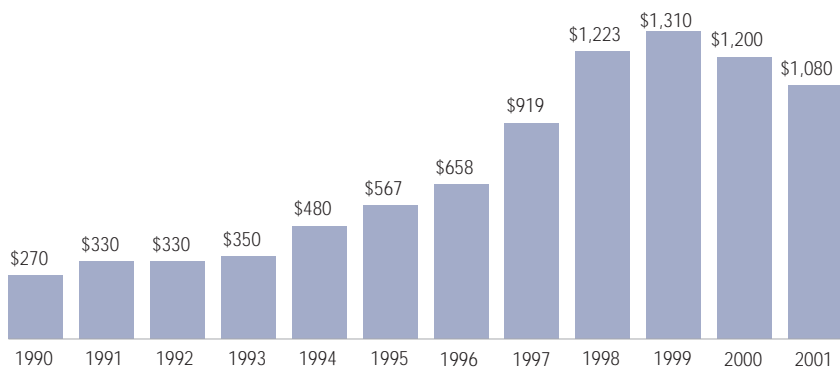
### Cumulative Profit/Loss (US\$ millions)



The poor performance within the space insurance sector in the last three years has meant that several insurers who were attracted to the sector during the 'boom' years of the mid 1990s have recently withdrawn their capacity and ceased underwriting space business. Such withdrawals since 1999 have removed over US\$150 million of theoretical capacity from the space insurance market.

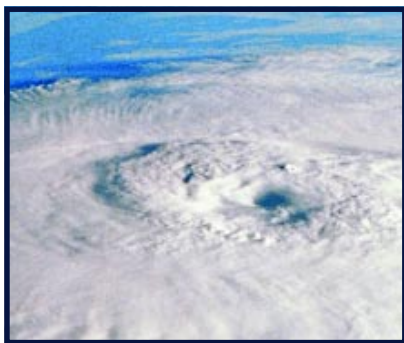
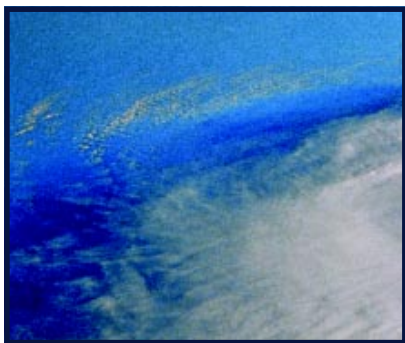
Market capacity was still in excess of US\$1 billion during 2000, representing over-capacity of between 300 – 400% based on a typical risk. Despite the previously mentioned 'withdrawals' from the sector, it would appear that total theoretical capacity for 2001 will remain marginally in excess of US\$1 billion.

### Historical Market Capacity (US\$ millions)



With only one major loss in the first six months of the year (ICO-F1, US\$235 million), rates did not harden significantly during this period as the incurred claim merely absorbed the market's premium for the first quarter. With the spate of losses and anomalies during the third and fourth quarters, and the fact that the majority of these occurred within a two-month period, the market has now shown definite signs of hardening.

Differentiation and subsequent rating appraisal between satellites and launch vehicles with or without proven heritage has been exacerbated although rates for all business have increased on a year-on-year basis. The availability and provision of extended launch plus five years in-orbit cover has become almost non-existent, or offered at prices that in many cases are too prohibitive to make them commercially viable to the insured.



## 2000 Claims

Date of Loss	Insured	Sun Insured
12 <sup>th</sup> March 2000	ICO-F1	\$235,000,000
In orbit	Solidaridad 1	\$270,000,000
In orbit	AceS Garuda 1	\$118,420,000
In orbit	Insat 3B	\$17,100,000
20 <sup>th</sup> November 2000	Quickbird 1	\$265,000,000
In orbit	Galaxy VII	\$134,000,000
In orbit	TDRS-H *	\$98,000,000
	<b>TOTAL</b>	<b>\$1,137,520,000</b>

\* To be confirmed

The launch manifest for 2001 would suggest that the number of commercial launches planned for this year is markedly lower than in recent years despite the fact that several launches originally planned for 2000 have 'slipped' into 2001. As a consequence, anticipated premium for 2001 is approximately US\$650 million – its lowest level since 1997. Insurers are naturally desperate to recoup their losses of the last three years but with a deflated premium level

that could be eradicated by only two major losses, the prospects are not good. While insurers are likely to demand increased rates for new business in 2001, much of this premium will be 'booked' into 2002 and beyond. The statistical probability of there being at least one launch failure this year, coupled with continued concerns over the health of a number of in-orbit satellites, means that 2001 could again be a marginal year for insurers.

## Reinsurance Market Review

During the last quarter of 2000 much conjecture existed as to the extent by which the Aviation Reinsurance market would simultaneously look to raise core programme retention levels and increase rates.

Three months on and very few opportunities have been missed by a market desperate to bring about change.

Without exception all Excess of Loss (XOL) programmes renewing at 1<sup>st</sup> January have been subject to significant increases in rates in the middle and catastrophe areas. Levels of increase have, of course, varied, with factors such as recent loss history, underwriting style and penetration being key factors in determining the extent of the rate increase applied to a particular programme.

It is difficult to generalise but rating levels have, on average, moved upwards by some 30-40%. Much higher increases were, however, witnessed, especially in respect of those programmes renewing for the first time since January 1999.

The majority of leading XOL reinsurers had long held the view that their product was fundamentally under-rated and that the direct market had been supported for long enough with cheap reinsurance coverage. Here was the opportunity to bring about change and at the same time, here was an environment where reinsurers would not be undermined in pursuit of their goals.

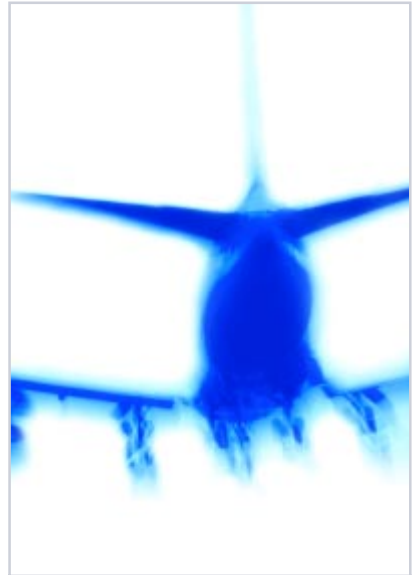
Within the extreme primary area of the XOL market, coverage, providing buyers with the traditional risk transfer, has all but completely disappeared. Few markets remain to offer the sort of risk transfer product that buyers have been able to traditionally purchase, leaving many to seek alternative techniques to manage the potential downside from this area of their account.

Within the XOL market it was, however, not all one way traffic and in the band of exposure US\$50million – US\$500million, one particular reinsurer continued to dominate in pursuit of market share. Away from this particular market, however, brokers and buyers were forced to operate and think as though in a different environment. Core programme retention levels generally rose upwards to an original loss attachment point of US\$75million – US\$100million and pricing similarly increased to a level, more in line with burning cost plus margin.

Above this, in the middle to catastrophe areas reinsurers took every opportunity to impose more realistic pricing levels on core programmes. Similarly in the catastrophe area price rises were the order of the day as reinsurers both within Lloyds and in the Company market sought to counter overwhelming pressure from capital providers to deliver an improved return on exposed capital.



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4th Quarter 2000



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