



**MINISTÈRE
CHARGÉ
DES TRANSPORTS**

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Annual report 2022/2023

Fleet – Traffic- Investments - Events

Ropeways and mountain resorts travelators



Revision History

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INTRODUCTION

The purpose of this report is to present the fleet, traffic, investments and events for 2022/2023.

Article L342-7 of the French Tourism Code provides the definition of “lift systems” (*remontées mécaniques*):

“Lift system” refers to all public passenger transport equipment using cog railways and cableway installations covered by Regulation (EU) 2016/424 of the European Parliament and of the Council of 9 March 2016 on cableway installations and repealing Directive 2000/9/EC, as well as cableway installations used to service mountain shelters as referred to in Article 2(2)(d) of the same Regulation.

“**Aerial ropeways**”, in the regulatory sense of the term, include both bi-cable and single-cable ropeways (gondolas, chairlifts).

“**Drag lift**” covers lifts with rods (fixed or detachable), ropes, reels or cable tows.

Other lift systems include funicular railways, inclined lifts and cog railways.

The travelator covered in this document are those referred to in Article L342-17-1 of the French Tourism Code: “[...] travelators providing transport for tourist or sports purposes at mountain resorts”

A list of the various categories of systems, with their codes, is appended at the end of the document.

With regard to events, the procedures for reporting and qualifying injuries are those outlined in the French Order of 26 July 2010 and the Circular of 5 September 2011.

This report therefore takes into account these procedures for reporting and qualifying injuries.

In accordance with these provisions, lift system operators have submitted event reports to the inspection authorities for:

- any accident involving at least one seriously injured person;
- any accident or incident jeopardising the safety of persons, caused by the malfunction of a safety component or device, infrastructure failure or failure to comply with operating rules;
- any material damage caused by an external event or fire;
- any incident requiring the evacuation of users;
- any other safety-related event likely to be covered by the media (particularly falls from great heights).

STRMTG has therefore compiled a list of events concerning accidents or incidents that have occurred on French lift systems during the 2022/2023 operating season, and which concern the users.

This report therefore details the types of events mentioned above that occurred during the 2022/2023 season, describes the events and draws conclusions on changing lift system safety. Other operating events are recorded directly by the operators.

Seriously injured:

(definition of a "seriously injured person" according to the Circular of 5 September 2011)

Any injured person who has been hospitalised for more than twenty-four hours, excluding suicide attempts. To avoid reporting minor injuries, only fractures of the lower limbs, pelvis, spine and skull, as well as severed fingers or limbs, are presumed to be serious.

Death:

Any person killed instantly or dying within thirty days of the accident, except suicides.

2023 Key figures for lift systems and mountain resort travelators

FLEET - TRAFFIC - INVESTMENTS

Fleet as of 01/01/2023

1095 aerial ropeways
1911 drag lifts
478 mountain resort travelators
34 other

Traffic in millions of trips:

546 in total, including:

396 Northern Alps
72 Southern Alps
57 Pyrenees
7 Jura
8 Vosges
6 Massif Central

€120.01 million excl. VAT in investment
€1,478 million excl. VAT in turnover (operators)
7.9% investment / turnover

33 new systems planned for 2023, including

7 detachable gondola lift systems
1 single-cable aerial ropeway with chairlifts and gondolas
2 detachable chairlift systems
3 fixed-grip chairlift systems
4 ski tows with spring boxes
2 low-level ski tows
14 mountain resort travelators

73 systems closed in 2022

Breakdown of the 504 operators:

23%: "Public" operators
11%: "Semi-public" operators
29%: "Private" operators
37%: "Ski school" operators

2023 Key figures

For lift systems and mountain resort travelators

ACCIDENTS

1 accident with 1 death
26 accidents with serious injuries

Accidents by type of system (Serious injuries)

1 victim (death) on gondola lift
18 victims on chairlifts
7 victims on drag lifts
1 victim on travelators for winter sport or tourist use

Accidents by cause

18: user behaviour - clumsiness
5: user behaviour - recklessness
1: external cause - third party
2: operational problem - staff failure
1: operational problem - mechanical failure / malfunction

34 passengers who fell from heights on aerial ropeways

1 death
5 seriously injured
25 slightly injured
3 unharmed

1. FLEET

1.1. LIFT SYSTEM FLEET ON 01/01/2022

1.1.1 Fleet and changes

The lift systems covered by this document include all cableway installations carrying passengers, as well as cog railways.

The French lift system network includes **3,040** systems, divided into three categories. Ranked first in the world in terms of numbers, it accounts for nearly **15%** of the international fleet.

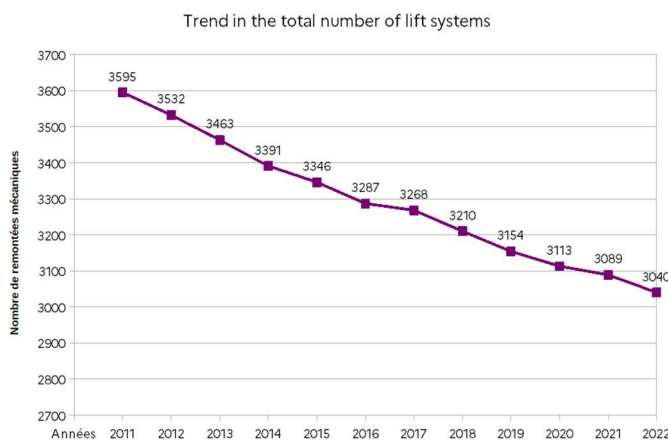
The 3,040 lift systems are operated across **312** sites (ski resorts, tourist sites, urban services or other sites).

MULTI-YEAR TREND

	2016	2017	2018	2019	2020	2021	2022
Number of aerial ropeways	1123	1122	1110	1107	1101	1100	1095 36%
Number of drag lifts	2130	2113	2067	2014	1978	1956	1911 63%
Number of other systems	34	33	33	33	34	33	34 1%
Total number of lift systems	3287	3268	3210	3154	3113	3089	3040
Vertical rise	658940	687895	662667	645477	642106	634689	627320
Power Moment (10 ³)	970431	977049	976687	982380	979260	981098	975618
Throughput (passengers/hour)	3615881	3626743	3598821	3684175	3808420	3534583	3506353

Table 1-1-1 above shows the lift system fleet and changes.

MULTI-YEAR TREND IN THE TOTAL NUMBER OF LIFT SYSTEMS

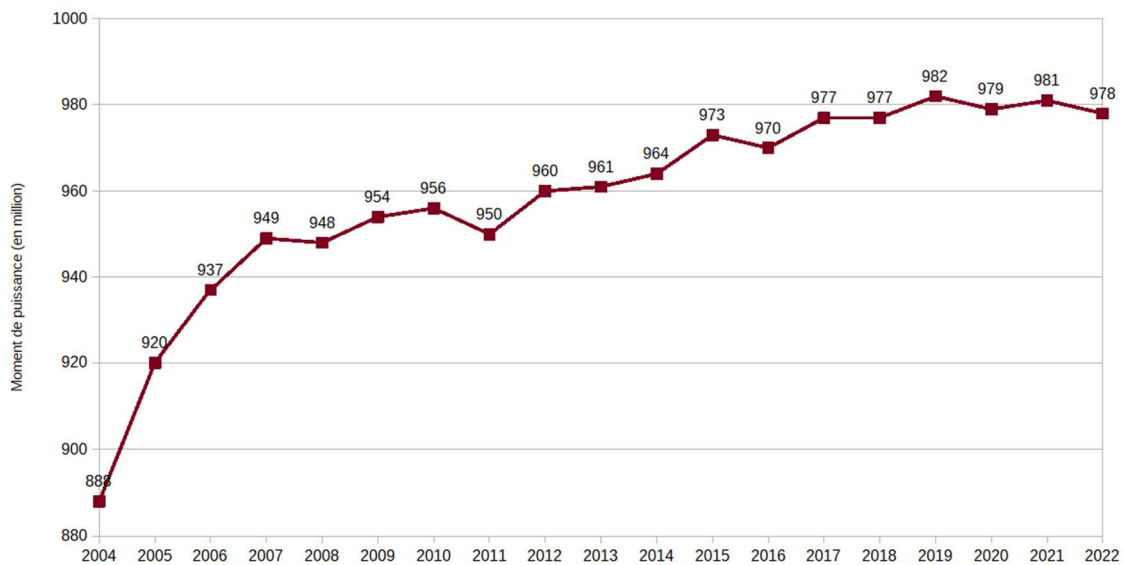


Graph 1-1-1 above shows the change in the total number of lift systems.

The steady decline in the total number of lift systems over the last several years can be explained by the replacement of older systems with new, generally more powerful ones.

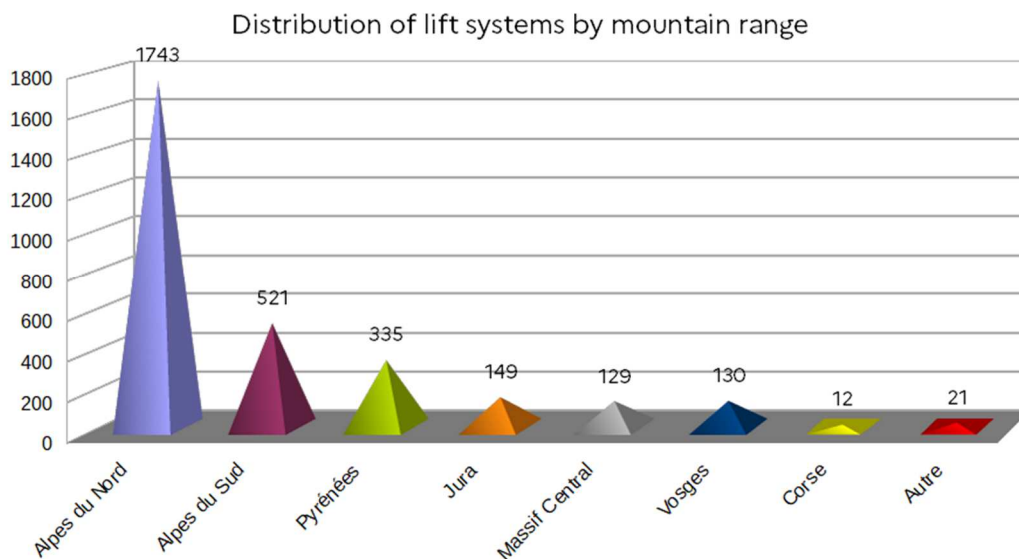
MULTI-YEAR TREND IN POWER MOMENT

Note: The power moment (moment de puissance) used by STRMTG is a conventional measurement. It is the product of the system's authorised hourly throughput, expressed in p/h, and its vertical rise, measured in m.



Graph 1-1-2 above shows the change in total power moment.

1.1.2 Distribution of lift systems by mountain range



Graph 1-1-2-1 above shows the distribution of lift systems by mountain range.

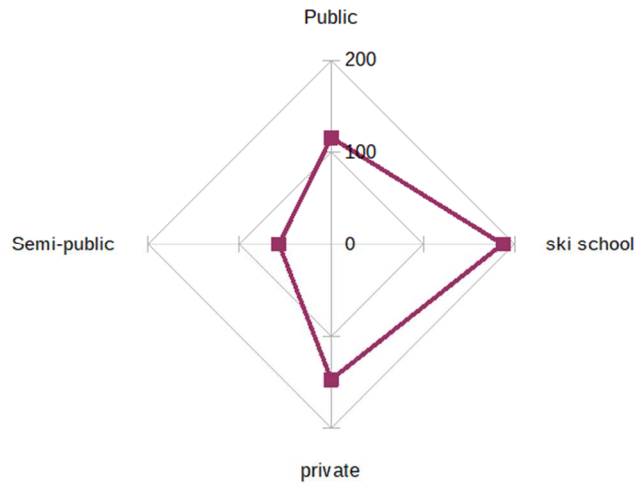
More than half of France's lift systems (57.5%) are located in the Northern Alps (*Alpes du Nord*).

1.1.3 Operators

France's **3,040** lift systems and **478** travelators are run by **507** operators. These include:

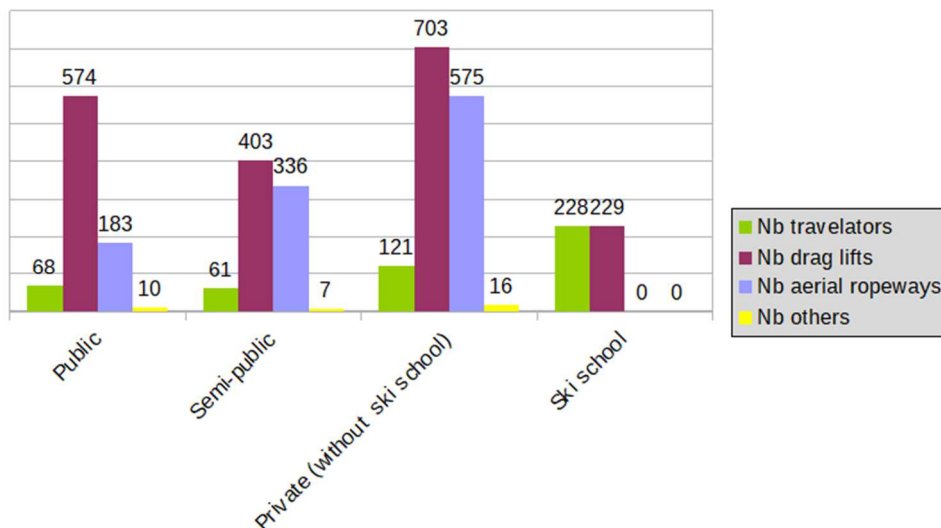
- **116** "public" operators;
- **57**: "semi-public" operators;
- **147** "private" operators;
- **187** "ski school" operators.

Breakdown of operators by legal status



Graph 1-1-3-1 above shows the breakdown of operators according to legal status.

Breakdown of systems by operator legal status

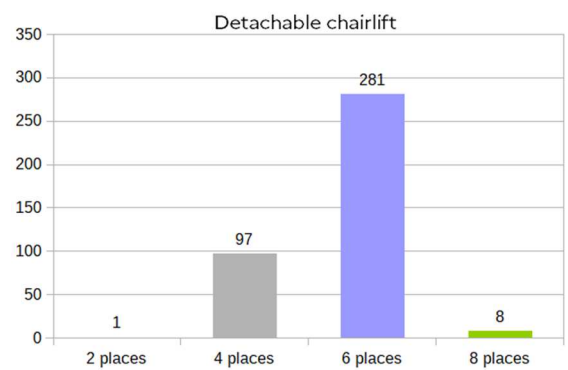
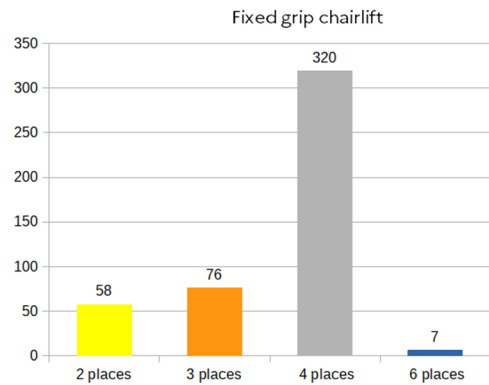
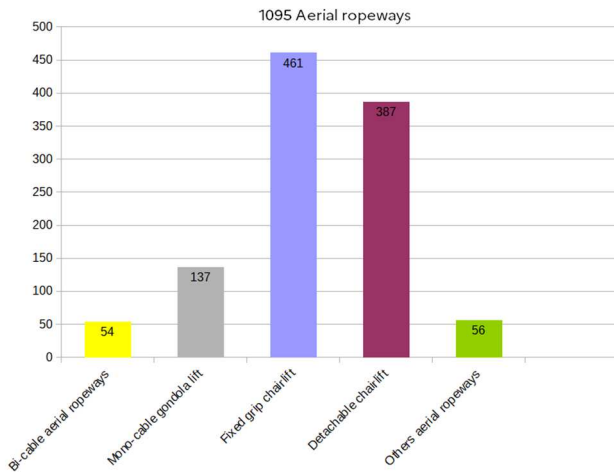


Graph 1-1-3-2 above shows the breakdown of systems by operator legal status.

The breakdown by operator legal status shows that the "public" operators' fleet is mainly made up of drag lifts, that the "semi-public" and "private" operators share over 80% of aerial ropeway systems, and that half of the ski school systems are made up of drag lifts and half of travelators.

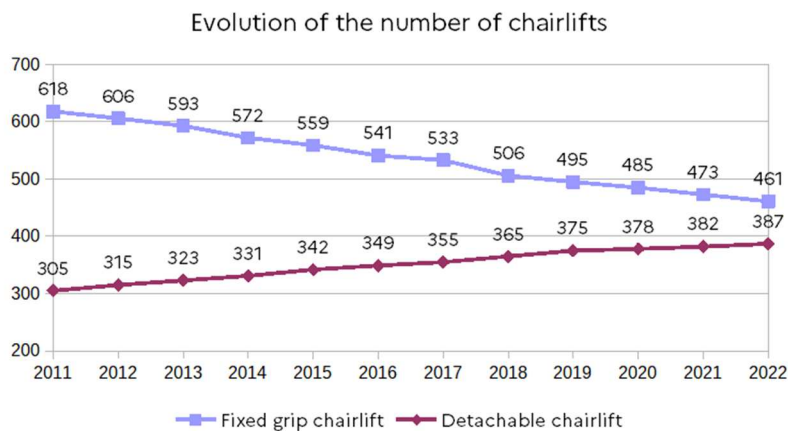
1.2. AERIAL ROPEWAYS

1.2.1 Fleet and changes



Graphs 1-2-1-1 above show the composition of the aerial ropeway fleet.

MULTI-YEAR TREND IN THE NUMBER OF AERIAL ROPEWAYS

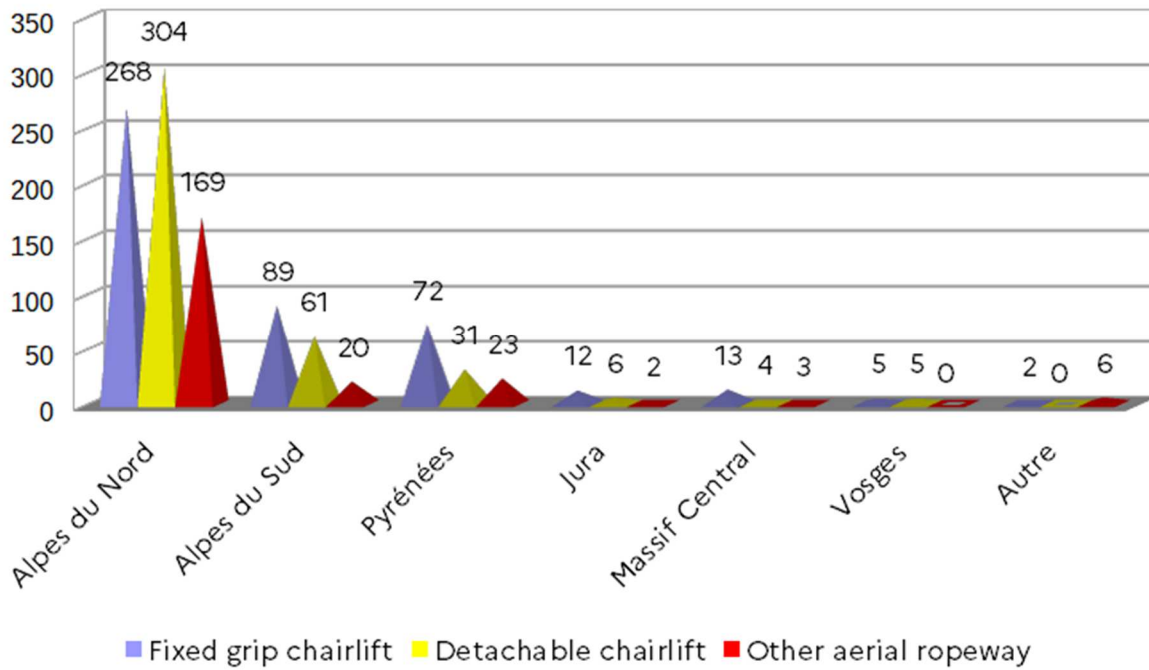


Graph 1 1-1-1 above shows the change in the aerial ropeway fleet.

The number of fixed-grip chairlifts is continuing to decrease, offset by a slight increase in the number of detachable chairlifts to modernise the fleet.

Data on the aerial ropeway fleet and changes are shown in the table in Appendix 4

1.2.2 Distribution of aerial ropeways by mountain range



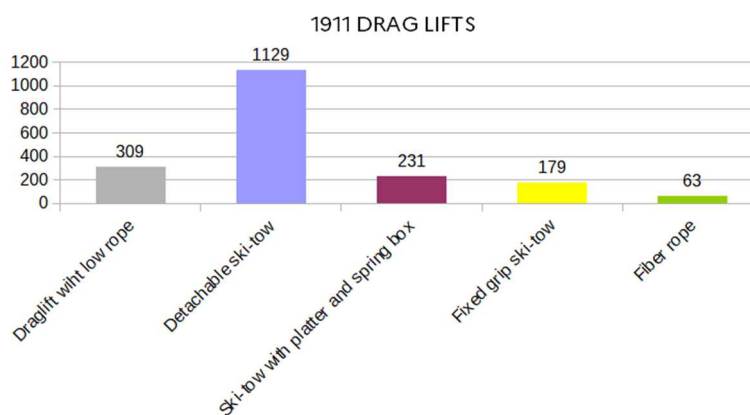
Graph 1-2-2 -1 above shows the distribution of aerial ropeways by mountain range.

Outside the Northern Alps, fixed-grip chairlifts remain the predominant systems.

Details of the aerial ropeway fleet by mountain range are provided in Appendix 4.2

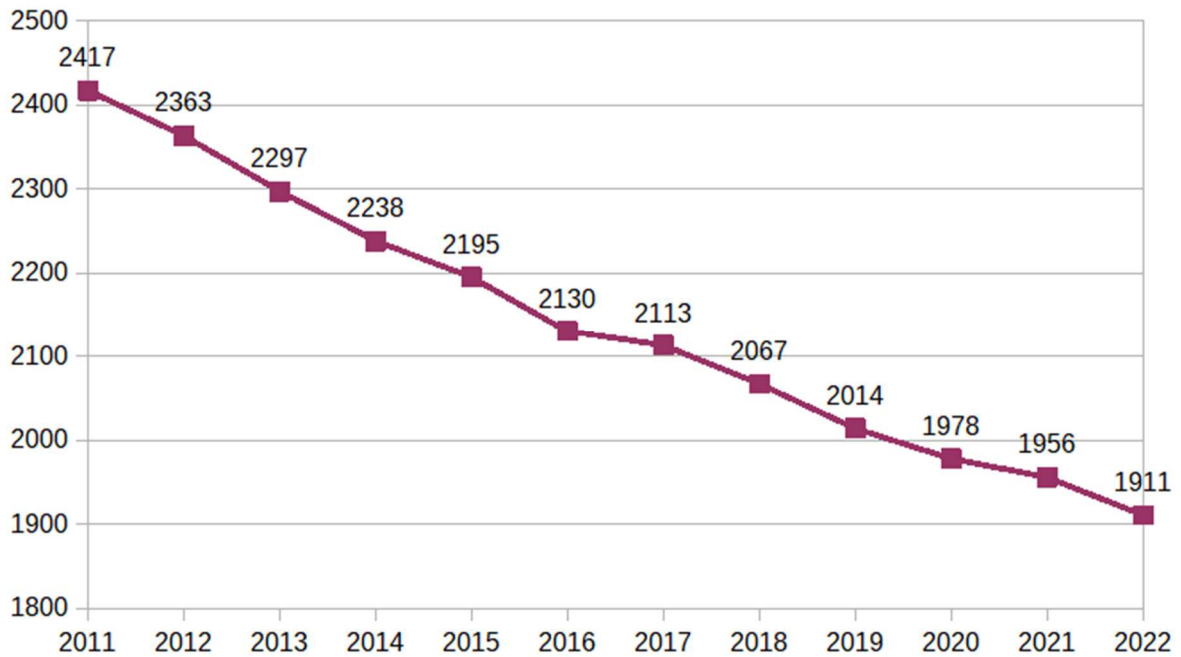
1.3. DRAG LIFTS

1.3.1 Fleet and changes



Graph 1-3-1-1 above shows the drag lift fleet.

MULTI-YEAR TREND IN THE NUMBER OF DRAG LIFTS

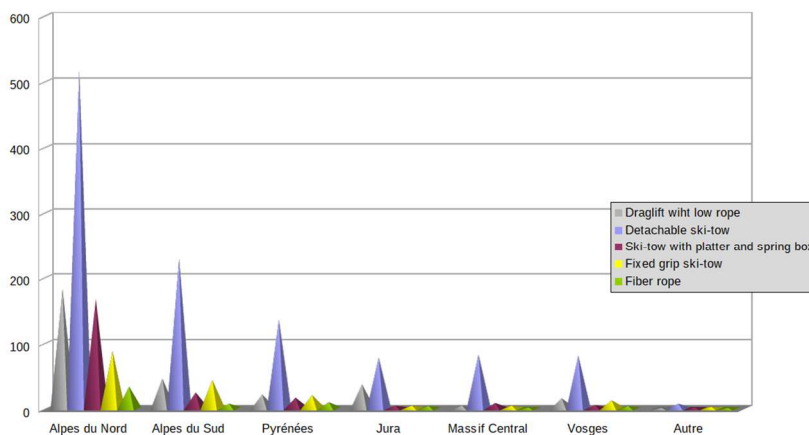


Graph 1-3-1-2 above shows the change in the total number of drag lifts.

The decrease in the number of drag lifts can be explained by their replacement with other types of systems, in particular travelators.

Data on the drag lift fleet and changes are shown in the table in Appendix 5

1.3.2 Distribution of drag lifts by mountain range

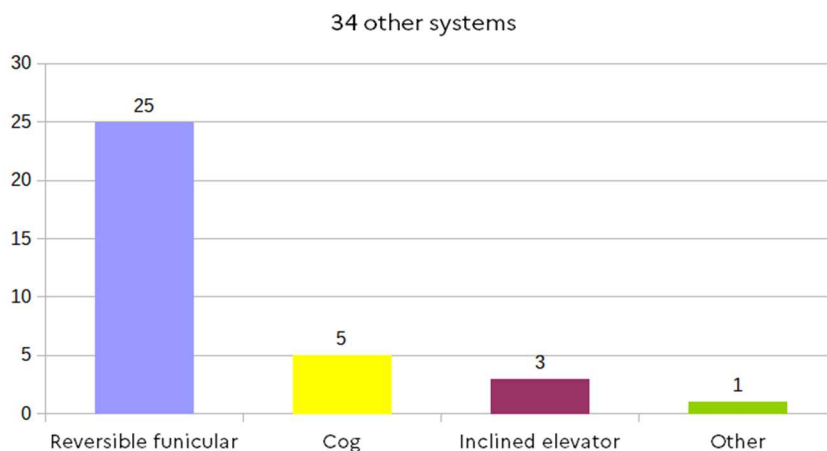


Graph 1-3-2-1 above shows the distribution of drag lifts by mountain range.

Details of the drag lift fleet by mountain range are provided in Appendix 5.2

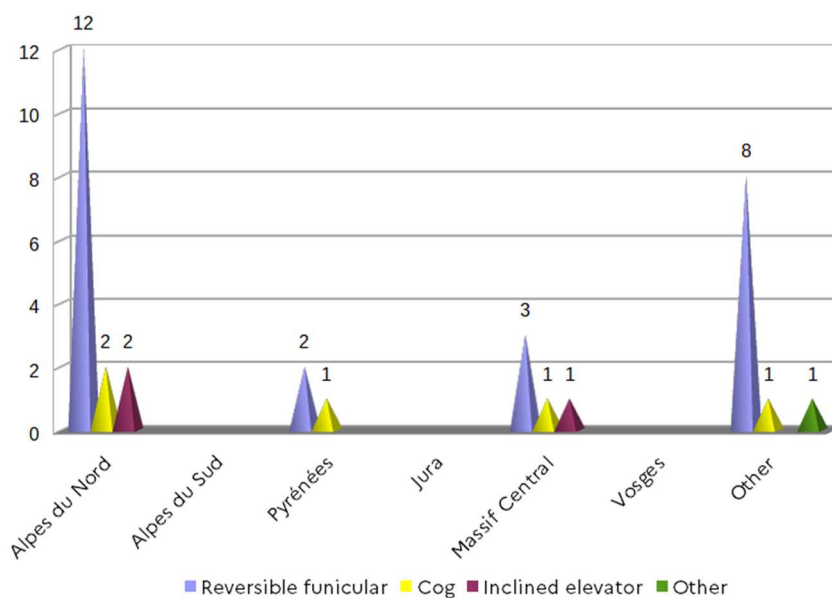
1.4. OTHER SYSTEMS

1.4.1 Fleet



Graph 1-4-1-1 above shows the other systems.

1.4.2 Distribution of other systems by mountain range



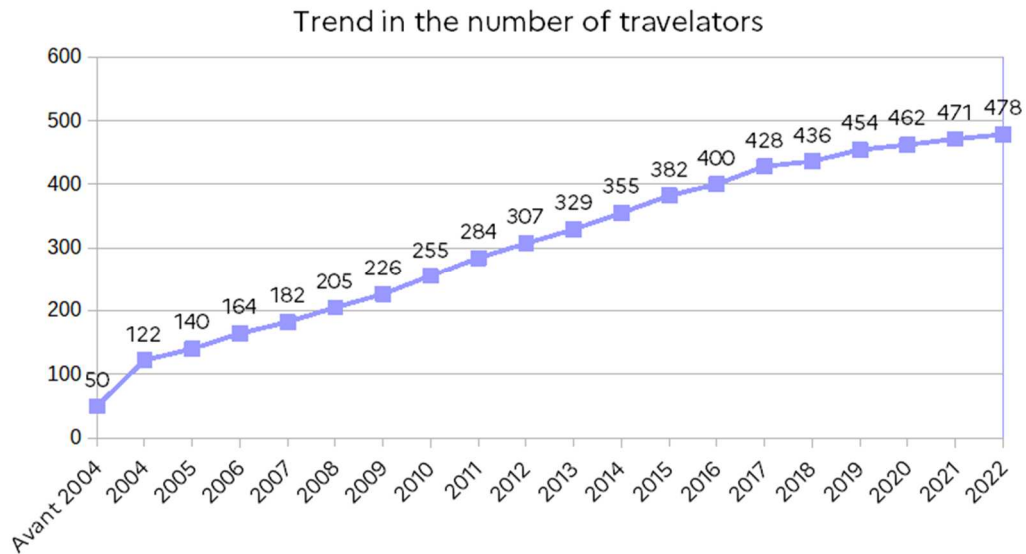
Data on the fleet of other systems and changes are shown in the table in Appendix 6

1.5. TRAVELATOR FLEET AT 01/01/2023

1.5.1 Fleet and changes

As of 01 January 2023, the travelator fleet included 478 travelators.

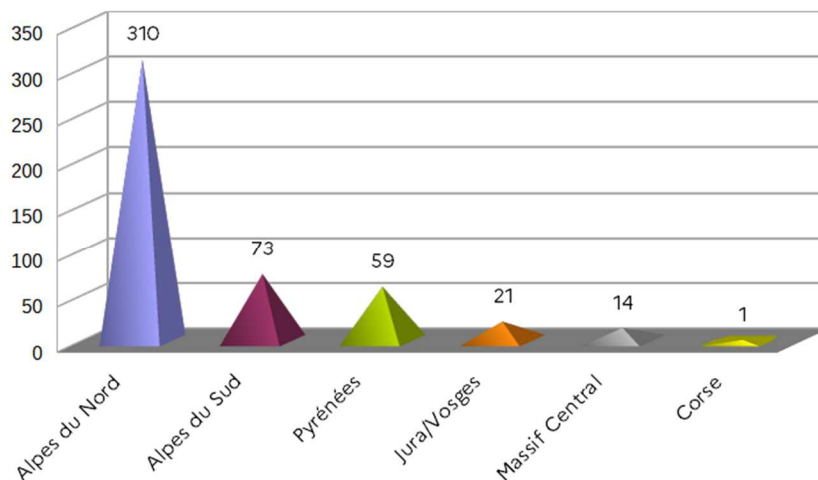
MULTI-YEAR TREND IN THE NUMBER OF TRAVELATORS



Graph 1-5-1-1 above shows the change in the travelator fleet.

The number of mountain belt travelators has increased the most since 2004.

1.5.2 Distribution of travelators by mountain range



Graph 1-5-2-1 above shows the distribution of travelators by mountain range.

2. TRAFFIC

The estimation of the total traffic on French lift systems is based on collaboration between all industry professionals (operators, Domaines Skiabiles de France, STRMTG, etc.). This reflects a key strength in the lift system sector and attests to a unanimous desire to work together to produce unique, reliable and representative data.

STRMTG uses this source data to produce a national estimate. The estimation method approved by industry partners has not changed, and remains the same as in previous years (for more details, see the estimation method explained in the appendix).

The results are used to track lift system activities, and are therefore important for the entire industry.

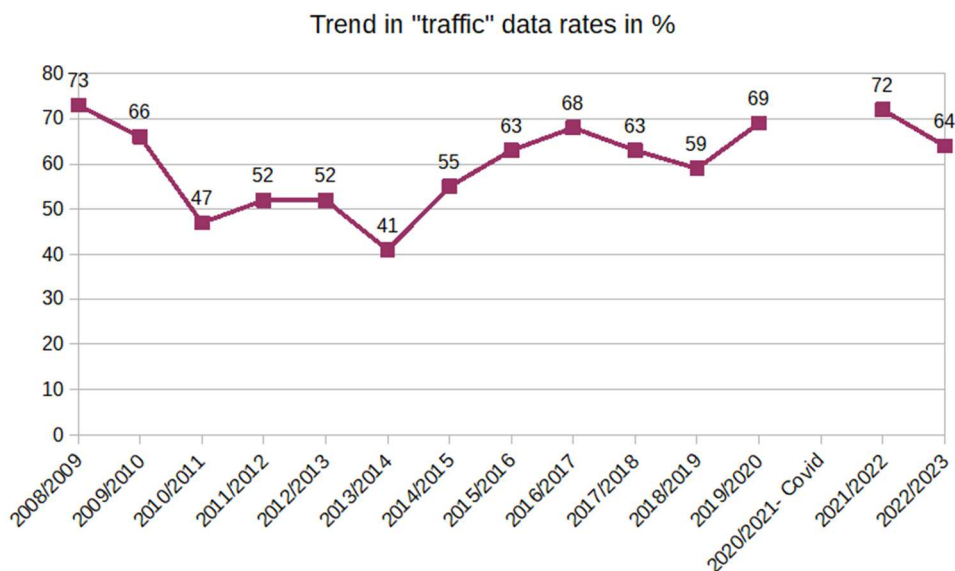
In the 2022/2023 season, these systems carried **546 million** passengers. During the 2021/2022 season, 614 million passengers used the lift systems. Numbers are therefore down. This drop can be explained in part by the lack of snowfall in some mountain ranges.

Note: However, it should be noted that the figures below do not take into account travelator traffic.

2.1. 2022/2023 SEASON SURVEY

For the 2022/2023 season, **88 operators** completed the traffic survey.

MULTI-YEAR TREND IN "TRAFFIC" DATA RATES

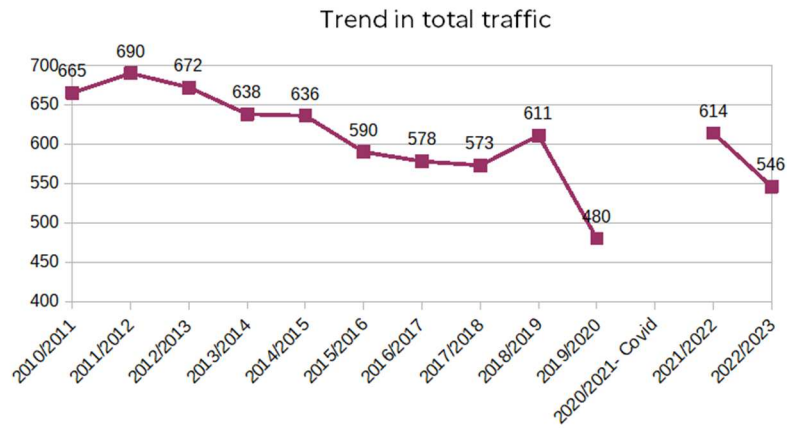


Graph 2-1-1 above shows the change in the rate of "traffic" data supplied*

* indicated by the total power moment of the systems for which traffic is declared compared to the total power moment of the fleet. Please note that traffic was not assessed for the 2020/2021 season.

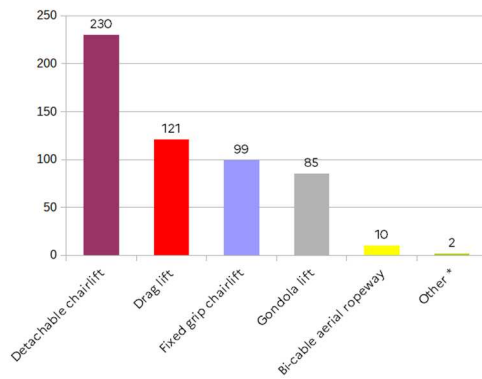
2.2. CHANGE IN TOTAL ESTIMATED TRAFFIC

MULTI-YEAR TREND IN TOTAL TRAFFIC



Graph 2-2-1 above shows the change in the total estimated traffic.

2.3. TRAFFIC BY CATEGORY OF SYSTEM

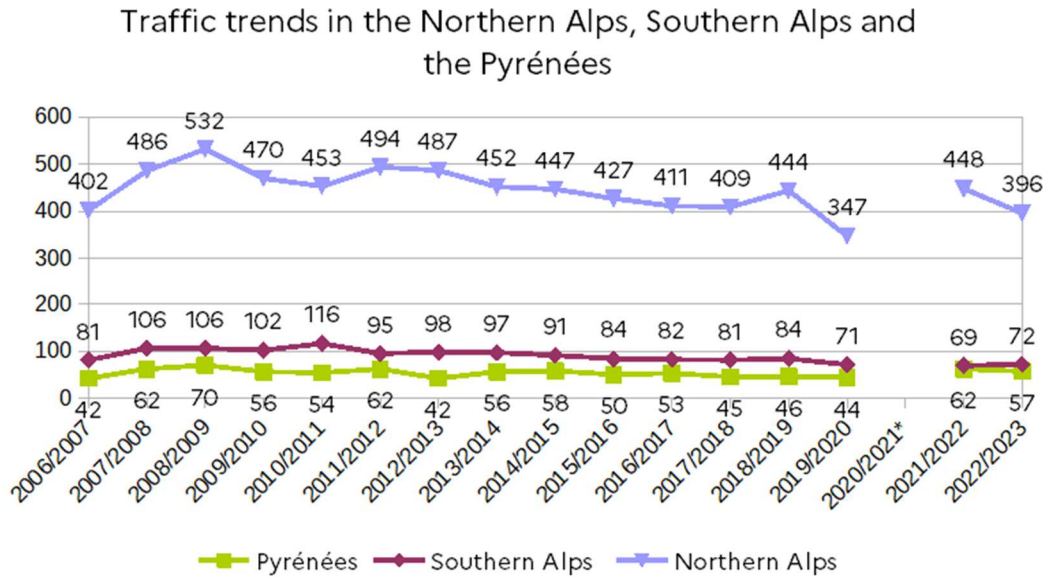


Graph 2-3-1 above shows traffic for each category of system in millions of trips.

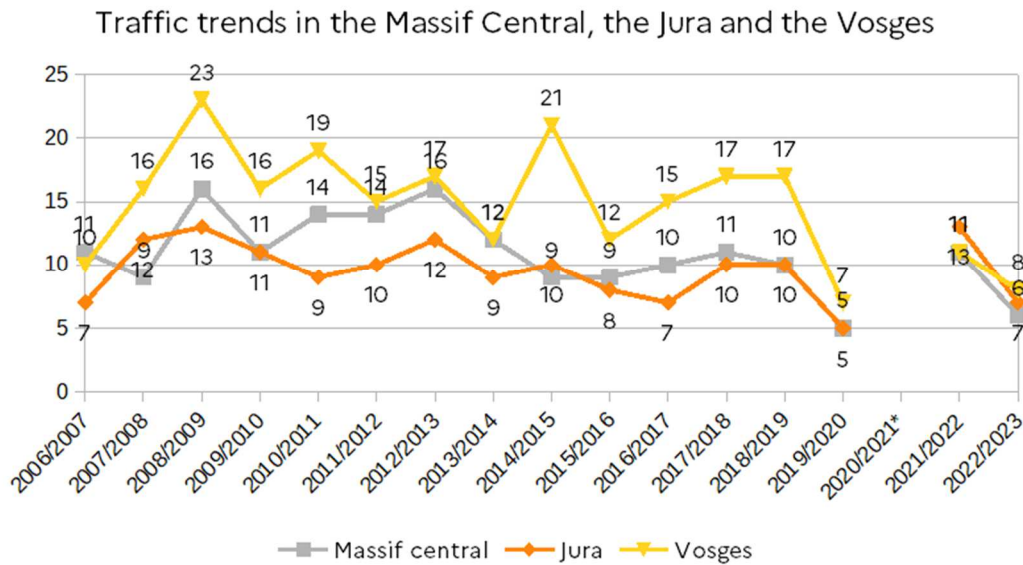
* Funicular railways, inclined lifts.

2.4. TRAFFIC BY MOUNTAIN RANGE - TRENDS IN RECENT SEASONS

MULTI-YEAR TRAFFIC TRENDS BY MOUNTAIN RANGE



Graph 2-4-1 above shows the change in traffic by mountain range.



*Please note that traffic was not assessed for the 2020/2021 season. (Lift systems closed to the general public)

Graph 2-4-2 above shows the change in traffic by mountain range.

3. INVESTMENTS

3.1. INVESTMENTS IN NEW SYSTEMS IN 2023

Planned investment in new systems in 2023 amounts to €120.01 million excl. VAT.

Investment was down by €10.29 million on last year.

Please note that this year there were no new urban systems (outside the mountains).

The tables and graphs in this section show the number of new systems and the amounts invested, broken down by mountain range and category of system. It does not take into account changes to existing lifts (unless the purpose is to change the type of lift system, e.g. from a chairlift with fixed grips to a chairlift with detachable grips).

Amounts are given in millions of Euros (excl. VAT), based on information provided by the prime contractors.

€120.01 M (excl. VAT) for "Mountain" systems

Manufacturers	TYPES OF SYSTEMS					Total
	Mono-cable gondola lifts	Chairlifts with detachable grips / Mono-cable detachable chairlifts and gondolas	Chairlifts with fixed grips	Drag lifts	Travelators	
POMA	4			1		5
DOPPELMAYR	2					2
LEITNER	1	1				2
GMM			1	4		5
INGELO			1			1
MND		2				2
CCM			1			1
SUNKID					5	5
FICAP					7	7
4Experience				1		1
n/a					2	2
Total	7	3	3	6	14	33

Table 3-1-1 above shows the breakdown of new systems by manufacturer and type.

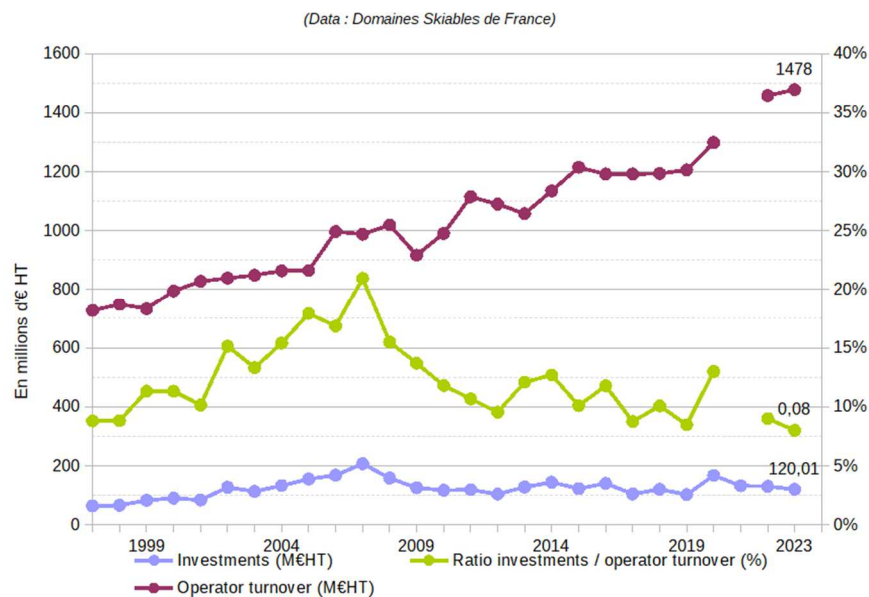
Details of new systems for 2023 are given in Appendix 3.

		TYPES OF SYSTEMS					No. of systems	Investment (amount under project management) in millions of € excl. tax.
		Monocable gondola lifts	Chairlifts with detachable grips/Monocable detachable chairlifts and gondolas	Chairlifts with fixed grips	Drag lifts	Travelators		
MOUNTAIN RANGE	Northern Alps	4	1	2	4	10	21	60.9
	Southern Alps	2			1	2	5	32.06
	Pyrenees	1	2		1	1	5	22
	Jura / Vosges			1		1	2	5.05
	Massif Central							
Total		7	3	3	6	14	33	120.01

Table 3-2 above shows the breakdown of equipment investment by type of system and by mountain range.

3.2. CHANGES IN INVESTMENT IN NEW SYSTEMS

COMPARATIVE MULTI-YEAR TREND IN INVESTMENTS AND OPERATOR TURNOVER



Graph 3-2-1 above shows the change in investment in new systems.

Investment fell from €130.3 million excl. VAT to €120.01 million excluding VAT.

Please note that lift systems remained closed throughout the 2020/2021 winter season. Industry professionals therefore jointly decided that a survey of operator turnover would not be carried out. As a result, the “investment/operator turnover” ratio was not determined for that season.

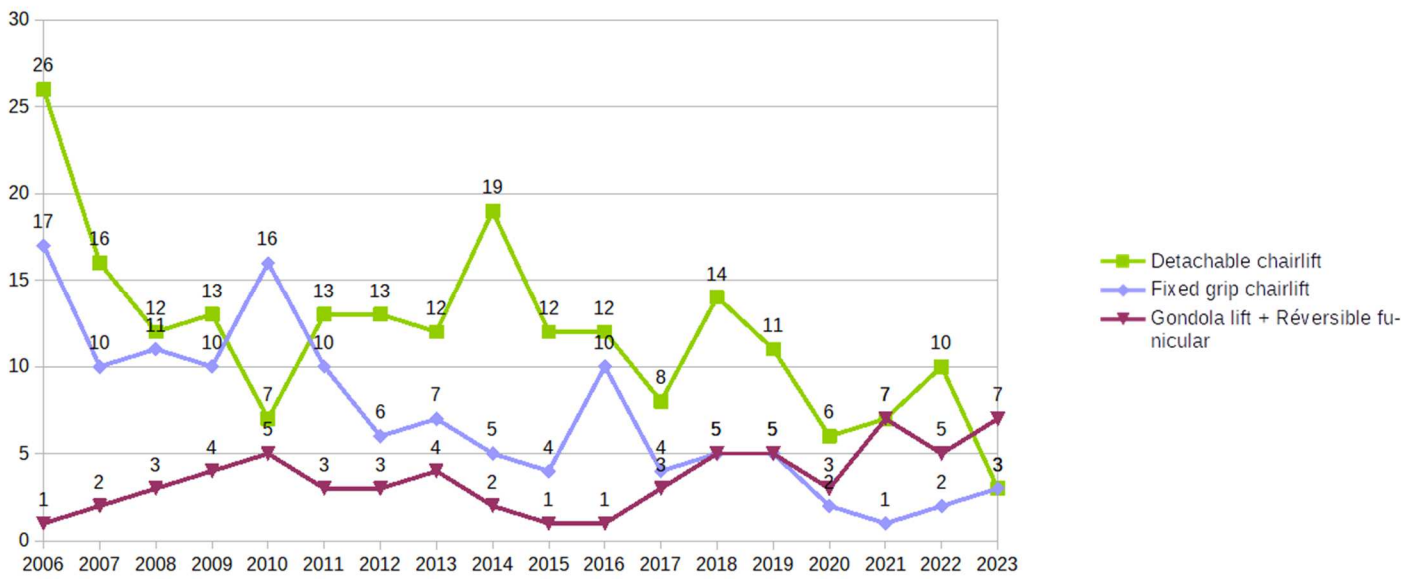
BREAKDOWN OF NEW SYSTEMS SINCE 2013

Systems/Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Funicular railway	1		1						1		
Mono-cable aerial ropeway											
Bi-cable aerial ropeway		1	1	1					1		
Subtotal: Mono-cable and bi-cable reversible aerial ropeway	1	1	2	1					2		
Gondola lift	4	2	1	1	3	5	5	3	7	5	7
Mono-cable aerial ropeway with chairlifts and gondolas	3	2		1		2	1	1	1	4	1
8-person detachable chairlift		1				0	1				
6-person detachable chairlift	7	14	9	11	7	12	9	6	7	6	2
4-person detachable chairlift	2	2	3		1	0					
Fixed-grip chairlift	7	5	4	10	4	5	4	2	1	2	3
Subtotal: Gondola / Chairlift	23	26	17	23	15	24	20	12	16	17	13
Ski-tow with detachable rods	2		2	4	3	1					
Ski-tow with fixed rods	4			1		0		1	1		
Ski-tow with springboxes	15	7	8	11	12	7	5	1	3	6	4
Low-level ski-tow	3	1	1	1	2	1		1		1	2
Low-level cable tow and low-level rope tow		1	7		8	7	1	1	1	1	
Subtotal: Ski-tow + Low-level rope tow	24	9	18	17	25	16	6	4	5	8	6
Subtotal:	48	36	37	41	40	40	26	16	23	25	19
travelator	28	31	37	32	29	18	40	15	11	17	14
TOTAL:	76	67	74	73	69	58	66	31	34	42	33

Table 3-2-2 above shows the change in new systems since 2013.

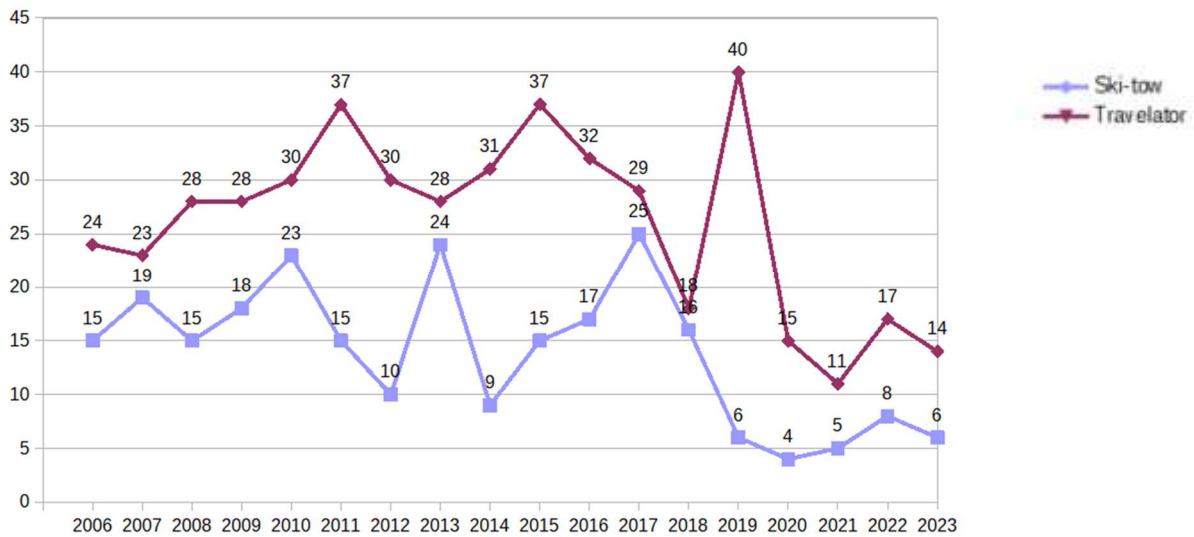
There has been a slight drop for all types of systems.

MULTI-YEAR TREND IN THE NUMBER OF NEW AERIAL ROPEWAYS



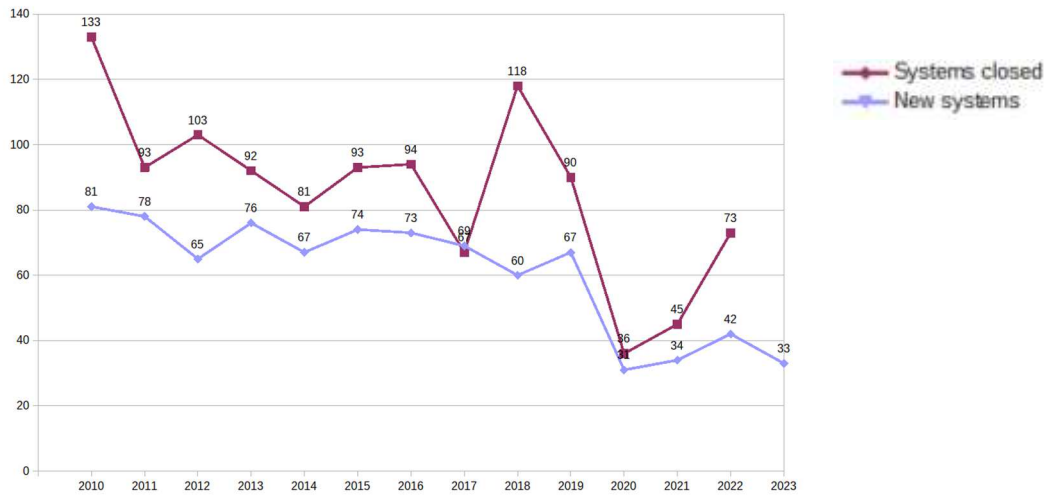
Graph 3-2-2 above shows the change in the number of new aerial ropeways by type.

MULTI-YEAR TREND IN THE NUMBER OF NEW DRAG LIFTS AND TRAVELATORS



Graph 3-2-3 above shows the change in the number of new drag lifts and travelators.

COMPARATIVE TREND IN THE NUMBER OF CLOSED AND NEW SYSTEMS



Graph 3-2-4 above shows the comparative change in the number of closed and new systems over the past 13 seasons.

Consolidated figures for 2022 show that the number of closed systems (73) far exceeds the number of new systems (42) in 2022.

Note: - The number of systems closed for 2023 will not be known until 2024.
- the list of abbreviations used for the categories is appended at the end of the brochure
- investments in travelators have been taken into account since 2014.

4. EVENTS

4.1. GENERAL

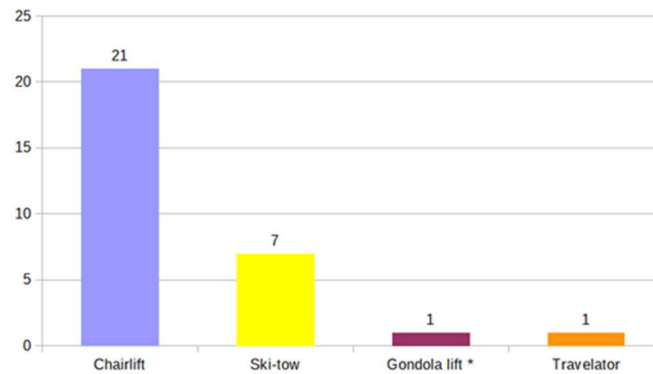
The number of accidents involving serious injuries was down from last season. This trend is partly due to fewer lift system users.

4.2. DISTRIBUTION OF ACCIDENTS INVOLVING SERIOUS INJURIES

During the 2022/2023 season, 27 accidents involving **1 death** and **26 serious injuries** were recorded for lift systems and mountain resort travelators.

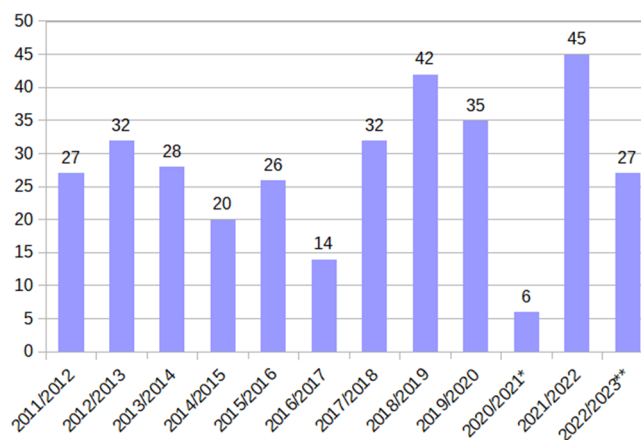
2022 / 2023 SEASON

27 ACCIDENTS RECORDED INVOLVING 1 DEATH AND 26 SERIOUS INJURIES



* One death on a gondola lift

MULTI-YEAR TREND IN THE NUMBER OF ACCIDENTS INVOLVING SERIOUS INJURIES



Graph 4-2-1

number of serious injuries (or deaths) per season over the past 12 years.

above shows the

*2020/ 2021 lift systems closed to the general public.

* One death on a gondola lift

The number of accidents involving serious injuries over a given period is directly related to the estimated traffic over the same period. The total traffic on lift systems, estimated for the 2022/2023 season, is 546 million trips. In comparison with the 2021/2022 season, traffic was down and so was the number of accidents involving serious injuries.

This traffic estimate is based on data provided by a panel of operators and extrapolated on the basis of the power moments of systems in the French fleet (source of traffic data: Domaines Skiabiles de France). For further details, please refer to Section 2 of this report.

2022 / 2023 SEASON	
Traffic / accidents / victims / ratio	
Traffic in millions	546
Number of accidents involving serious injuries (or death)	27
Number of deaths	1
Number of serious injuries	26
Number of accidents involving serious injuries per 100 million trips	4.9
Number of serious injuries per 100 million trips	4.9

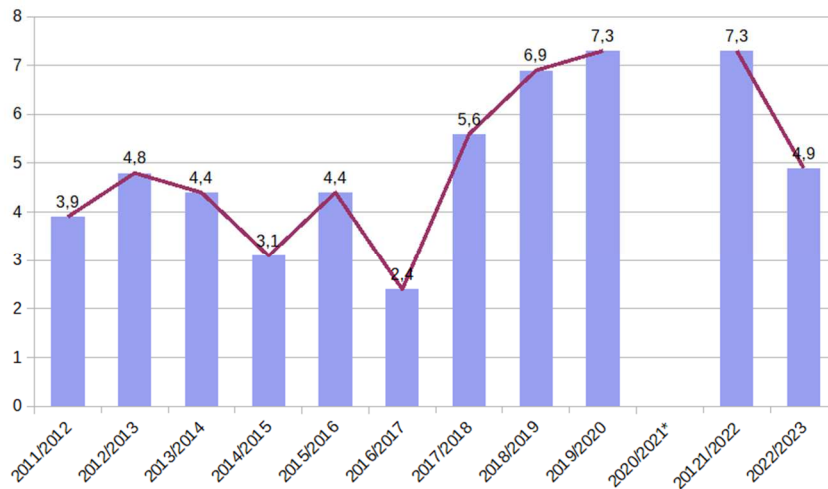
MULTI-YEAR TREND IN TRAFFIC / ACCIDENTS / VICTIMS / RATIO							
Seasons	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021*	2021/2022	2022/2023
Traffic in millions	578	573	611	480	*	614	546
Number of accidents involving serious injuries (or death)	14	32	42	35	6	45	27
Number of serious injuries (or deaths)	14	32	42	35	6	45	27
Number of accidents involving serious injuries per 100 million trips	2.4	5.6	6.9	7.3	*	7.3	4.9
Number of serious injuries per 100 million trips	2.4	5.6	6.9	7.3	*	7.3	4.9

Table 4-2-1 above shows the multi-year trend in the traffic / accidents / serious injuries / ratio.

*2020/ 2021 lift systems closed to the general public.

The ratio of serious injuries (or deaths) per 100 million trips always remains within the same range of values.

MULTI-YEAR TREND IN THE NUMBER OF SERIOUS ACCIDENTS PER 100 MILLION TRIPS



Graph 4-2-2 above shows the ratio of accidents and victims per 100 million trips.

*2020/ 2021 lift systems closed to the general public.

The graph above, which uses the data from the table on the previous page, shows a downward trend in the number of accidents involving serious accidents per 100 million trips.

4.2.1 By category of system

2022 / 2023 SEASON						
Category of system	Estimated traffic (millions of trips)	Category A	Category B	Category C	Category D	Total
Bicable aerial ropeways	10		1			1
Gondola lift	85					
Detachable chairlift	230		6			6
Fixed-grip chairlift	99	3	9			12
Ski-tow with fixed rods	8					
Ski tow with detachable rods	84	1	6			7
Ski-tow with spring boxes	26					
Rope tow	2					
Low-level cable tow	0.2					
Low-level rope tow	0.2					
Travelator	n/a			1		1
Other types of lift systems (funiculars, inclined lifts, etc.)	2					
TOTAL	546	4	22	1		27

Table 4-2-1-1, on the previous page, shows the breakdown of accidents involving serious injuries by type of system and event category for the 2022/2023 season, as defined in the appendix to the Circular of 5 September 2011.

MULTI-YEAR TREND IN THE NUMBER OF ACCIDENTS INVOLVING SERIOUS INJURIES BY TRAFIC / TYPE OF SYSTEM AND EVENT CATEGORY SINCE THE 2010 / 2011 SEASON						
Type of system	Estimated traffic (millions of trips)	Category A	Category B	Category C	Category D	Total
Aerial ropeways with closed vehicles	1084	3	4			7
Chairlifts	3969	14	238	3	1	256
Drag lifts	2217	7	56	9		72
Travelator	n/a		9	2		11
Other types of lift systems (funiculars, inclined lifts, etc.)	35	1	2	1		4
TOTAL	7305	25	309	15	1	350

Table 4-2-1-2 above shows the number of accidents involving serious injuries (or deaths) by type of system over the past 12 season.

*Categories of events defined in the appendix to the Circular of 5 September 2011:

Category A: "system/user" accident (the system is the cause of the accident)

Category B: "user/system" accident (the user is the cause of the accident)

Category C: "third-party" accident (the third party causes the accident and interferes with the system or user)

Category D: "system" incident (the system alone is the cause)

4.2.2 By cause

2022 / 2023 SEASON

BREAKDOWN OF 27 ACCIDENTS INVOLVING SERIOUS INJURIES (or deaths) BY CAUSE

Causes	Travelators	Chairlifts with detachable grips	Chairlifts with fixed grips	Ski-tow with detachable rods	Double monicable lift with detachable grips	Total
User behaviour - Clumsiness		5	7	5		17
User behaviour - Recklessness		1	2	1	1*	5
Operational problem - Staff failure			3			3
Operational problem - Mechanical failure- Malfunction				1		1
External cause - Third party	1					1
Total	1	6	12	7	1	27

Table 4-2-2-1 shows the breakdown of accidents by cause.

*1 death

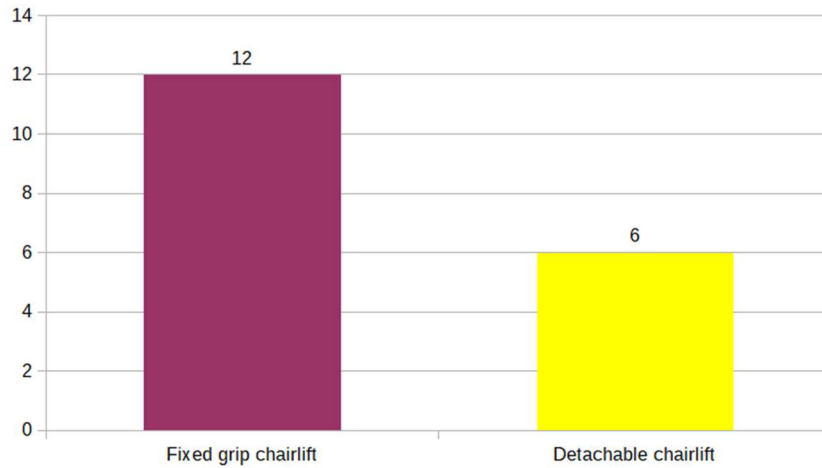
As in previous seasons, the main cause of accidents remains user behaviour, and mainly clumsiness, which accounted for almost all accidents this season.

4.2.3 Accidents with serious injuries on chairlifts

2022 / 2023 SEASON

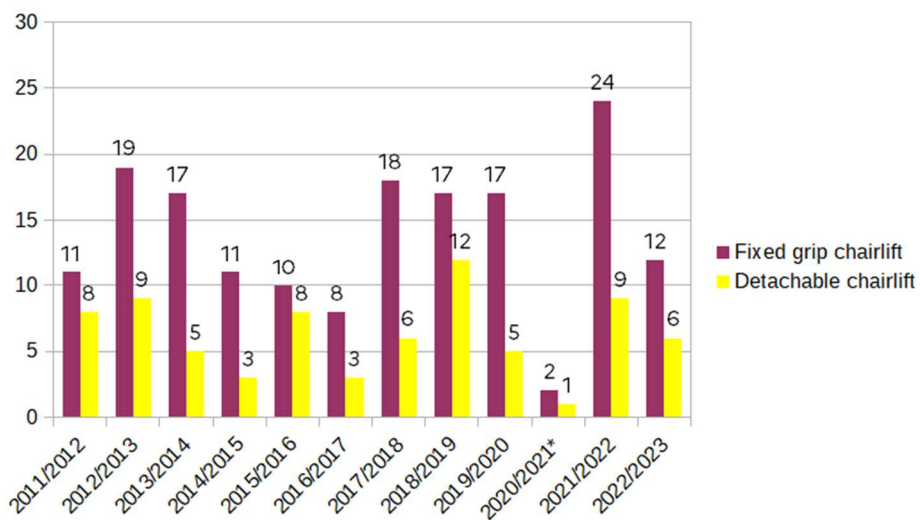
18 ACCIDENTS OCCURRED ON CHAIRLIFTS, CAUSING 18 SERIOUS INJURIES

The majority of serious injuries sustained on chairlifts are the result of a “passenger fall” (either a ground-level fall during loading or unloading, or a fall from height at other locations).



Graph 4-2-3-1 above shows the number of serious injuries (or deaths) during the 2022/2023 season by type of chairlift.

MULTI-YEAR TREND



Graph 4-2-3-2 above shows the number of serious injuries (or deaths) per season by type of chairlift.

*2020/ 2021 lift systems closed to the general public.

4.2.3.1 DEPENDING ON THEIR LOCATION

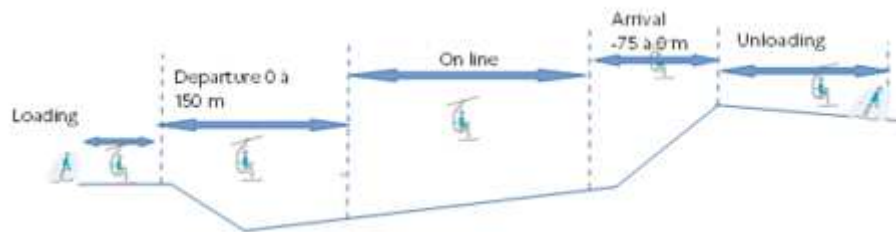
The following graph shows that the location of accidents with serious injuries on chairlifts is still mainly concentrated in the loading and unloading areas.

The main causes of accidents in these areas are:

- during loading: loss of balance, generally due to the speed differential between the user and the seat;
- unloading: getting off too late and loss of balance.

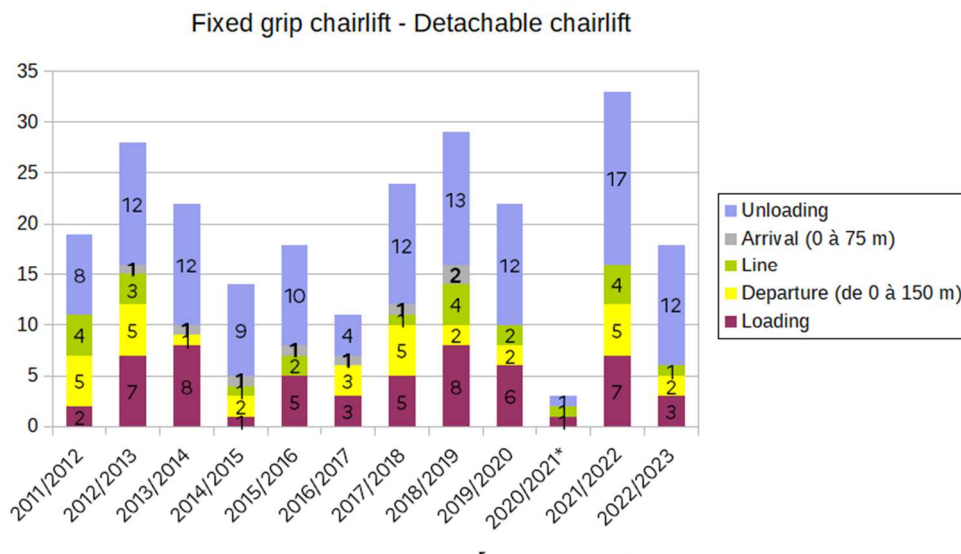
It is thought that these causes may stem from the stress experienced by the user during the loading and unloading phases.

Lift attendants must therefore continue to pay particular attention during the loading and unloading phases.



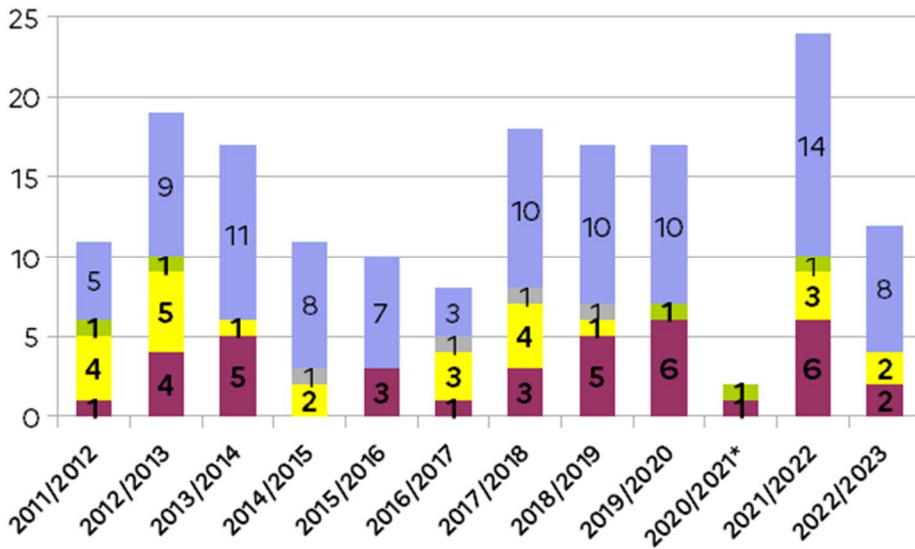
The diagram above details the different zones (locations) on a chairlift.

MULTI-YEAR TREND BY TYPE OF CHAIRLIFT AND LOCATION

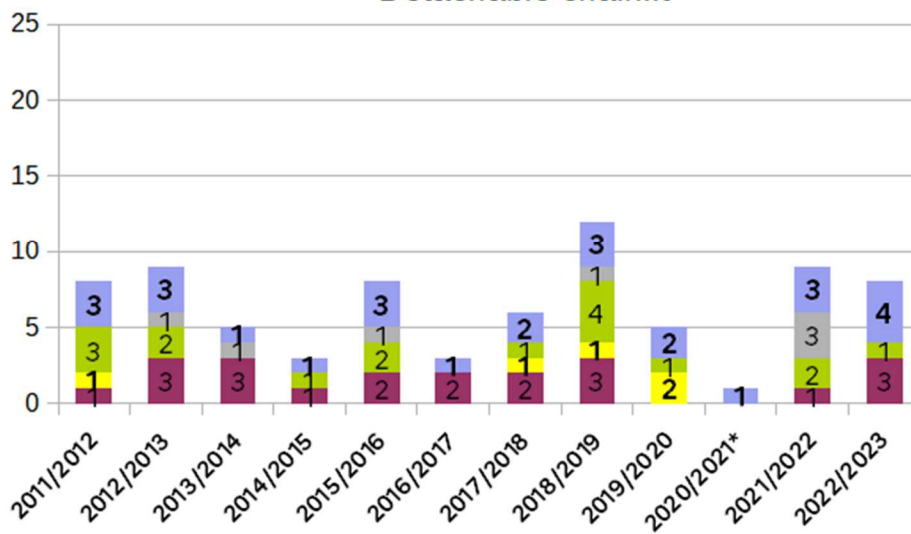


Graph 4-2-3-1-1 above shows the number of accidents with serious injuries (or deaths) per season on chairlifts.

Fixed grip chairlift



Detachable chairlift



Graphs 4-2-3-1-2 above show the number of accidents with serious injuries (or deaths) per season on chairlifts with fixed-grips or detachable grips.

*2020/ 2021 lift systems closed to the general public.

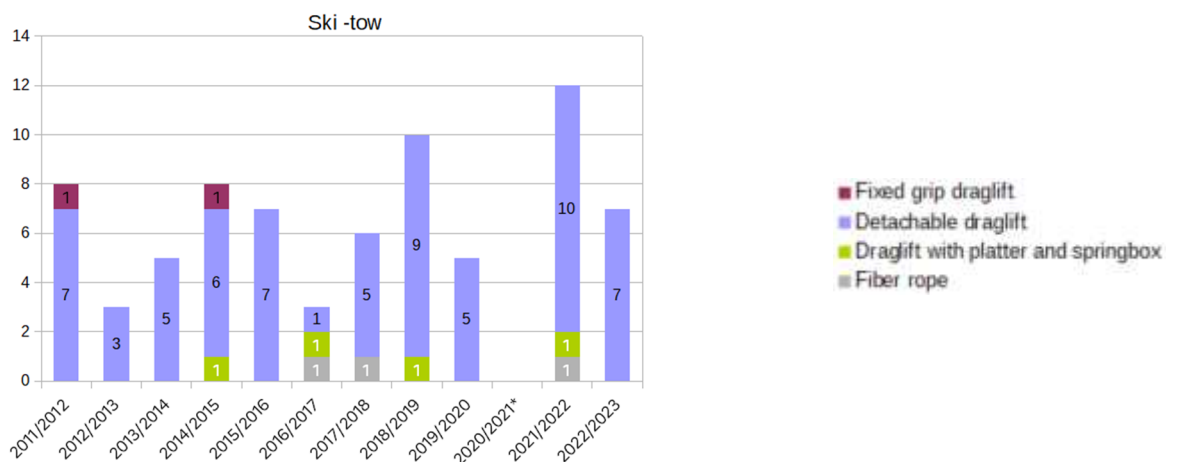
4.2.4 Accidents with serious injuries on drag lifts

2022 / 2023 SEASON

7 ACCIDENTS CAUSING 7 SERIOUS INJURIES OCCURRED ON DRAGLIFTS,

This season, all accidents involving serious injuries on drag lifts took place on ski-tows with detachable rods.

MULTI-YEAR TREND IN THE NUMBER OF ACCIDENTS INVOLVING SERIOUS INJURIES



Graph 4-2-4-1 above shows the number of serious injuries (or deaths) per season by type of drag lift.
*2020/ 2021 lift systems closed to the general public.

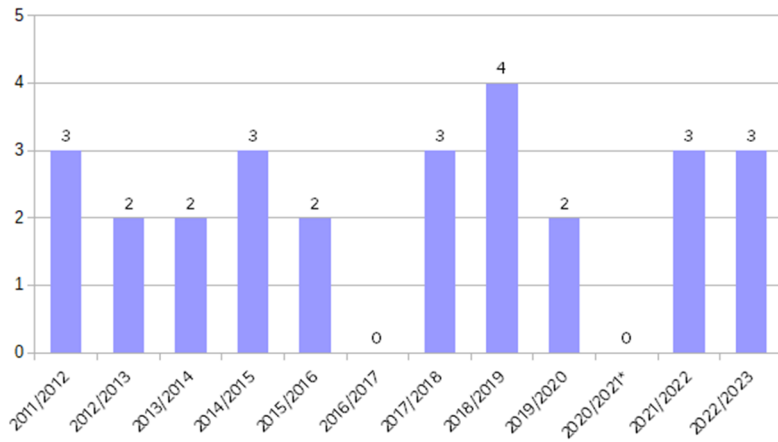
4.2.4.1 ACCIDENTS WITH SERIOUS INJURIES ON DIFFICULT DRAG LIFTS

The Order of 3 June 2002 extended the procedure for assessing difficulty of use to all French drag lifts. "Difficult" drag lifts under this procedure are identified by specific signage at their departure point.

During the 2022/2023 season, 3 accidents with serious injuries occurred on "difficult" drag lifts.

The graph below shows that the number of accidents on "difficult" drag lifts is relatively stable from season to season. The accidents occurred on ski-tows with detachable rods (RDP), a category that accounts for 97% of "difficult" drag lifts.

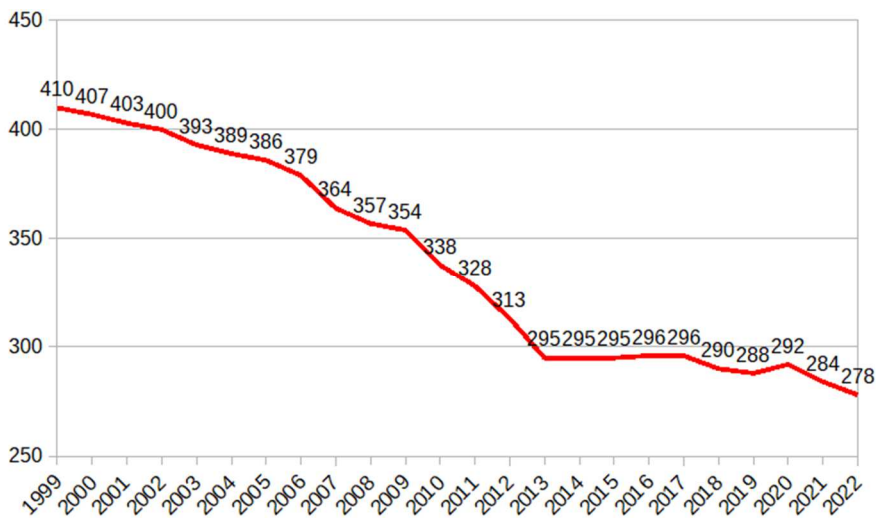
**MULTI-YEAR TREND IN THE NUMBER OF ACCIDENTS INVOLVING SERIOUS INJURIES ON
DIFFICULT DRAG LIFTS**



Graph 4-2-4-2-1 above shows the number of serious injuries (or deaths) per season on “difficult” drag lifts.

*2020/ 2021 lift systems closed to the general public.

It should also be noted that since 1999, the number of difficult drag lifts in service has fallen from 410 to 278.



Change in the number of “difficult” drag lifts

Graph 4-2-4-1-2 above shows the number of “difficult” drag lifts.

Table 5 below lists the accidents involving serious injuries that have occurred on “difficult” drag lifts since the 1999/2000 season.

Date of accident	Circumstances	Injured	Remarks
28/02/2023	Cable derailment caused by a user falling on another user on the line.	1 seriously injured (fractured humerus)	
08/02/2023	After falling on the line and losing their skis, the victim slipped and hit a tower protected by padding.	1 seriously injured	Child
27/01/2023	The victim moved away from the tower after turning around. The pole struck the tower and the victim was thrown violently.	1 seriously injured	
28/02/2022	Detachment of the grip on a sharp slope causing the victim to fall.	1 seriously injured	
19/01/2022	The victim was lifted by the pole, fell and slid down the uphill track.	1 seriously injured (fractured tibia fibula)	Child
02/01/2022	The tension of the pole produced a jolt that knocked the victim off balance.	1 seriously injured (fractured vertebra)	
04/02/2020	The passenger fell between the departure station and tower 1.	1 seriously injured (compressed vertebrae)	
03/02/2020	A snowboarder fell on the way up and slid into the next user behind him.	1 seriously injured (fractured vertebra)	
06/03/2019	The user was using their phone and was struck in the head by their own pole when they let go.	1 seriously injured (double skull fracture)	
06/02/2019	A snowboarder lost her balance and fell at the unloading tower.	1 seriously injured (spinal fracture)	
24/01/2019	The user's snowboard struck the frame. The user was propelled 3m forward.	1 seriously injured (dislocated knee)	
28/12/2018	The “unload in 30m” (<i>arrivée 30m</i>) sign slid down the slope and hit a user.	1 seriously injured (fractured malleolus)	
05/03/2018	A user fell between towers P3 and P4, and slid into a pine tree.	1 seriously injured (fractured tibia)	
30/01/2018	A user (aged 13) fell 50 m from the top and slid into a wind barrier.	1 seriously injured (fractured femur)	Child
23/02/2017	A user fell just before unloading and slid into other users, including the victim, who in turn fell and slid into other users	1 seriously injured	
20/02/2016	The user went onto the wrong side of the corner tower and fell.	1 seriously injured (fractured pelvis)	
18/01/2016	Fall when the pole departed.	1 seriously injured (spinal fracture)	
07/03/2015	Fall during ascent. The user lost a ski and deliberately removed the other. He slid into a tree.	1 seriously injured (hospitalisation for more than 24h)	Child

06/03/2015	Fall during ascent. The user continued to climb up the hill on foot, but fell and slid into tower P10.	1 seriously injured	Child
03/03/2015	Fall during ascent. The user slipped and collided with the next user.	1 seriously injured (fractured pelvis)	Child
16/04/2014	Fall during ascent. The user slid backwards without hitting any structures.	1 seriously injured (fractured leg)	
16/04/2014	Fall during ascent. The user slid backwards without hitting any structures.	1 seriously injured (fractured leg)	
04/04/2013	Fall during ascent. The user slipped and collided with the next user.	1 seriously injured (scapula pain, hospitalisation for more than 24h)	
16/03/2013	Fall during ascent. The user slipped and collided with the next 2 users.	1 seriously injured (coma, hospitalisation for more than 24h)	Child
28/02/2012	Fall on the line after contact with a third party at an intersection between the drag lift and the ski slope.	1 seriously injured (fractured hip)	
27/02/2012	Fall on the line - Collision with another user.	1 seriously injured (fractured ribs + hospitalisation for more than 24h)	
22/12/2011	A user tried to grab a pole "on the line", slipped and hit a tower.	1 seriously injured (suspected fractured femur + hospitalisation for more than 24h)	
30/01/2011	The user deviated from the track. When the pole tensioned, the user was thrown back abruptly, lifting them off the ground and colliding with a tower.	1 seriously injured (fractured femur and torn cruciate ligaments)	
05/01/2011	Fall on the line - Collision with another user	1 seriously injured (fractured femur)	
10/03/2010	The user fell following complete derailment of the drag lift cable.	1 seriously injured (fractured fibula)	The victim was on the line. The derailment appears to have been caused by improper release by a third party when unloading.
28/12/2009	Fall on the line - Collision with a tower	1 seriously injured (back injury: dorsal + spinal cord)	
21/03/2009	Fall on the line - Collision with another user	1 seriously injured (fractured tibia-fibula)	Child
17/03/2009	A young snowboarder fell on the line - collision with another user (elderly person)	1 seriously injured (fractured tibial plateau)	The seriously injured user was not the user who fell on the line
16/03/2009	A user fell on the line, after being startled by an off-piste skier in the immediate vicinity	1 seriously injured (femoral neck fracture)	
24/03/2008	Fall during departure	1 seriously injured (fractured fibula)	Child
12/02/2008	Fall on the line just before the unloading area. Collision with a tower.	1 seriously injured (fractured vertebra)	

06/01/2004	Fall on the line - collision with another user	1 seriously injured (fractured femur)	
08/03/2003	A user fell while descending the uphill track after letting go on the line and collided with another user	1 seriously injured (fractured tibia)	Child
01/03/2003	Fall on the line - collision with another user	1 seriously injured (Fractured jaw)	Child
15/02/2003	Fall on the line - collision with another user	1 seriously injured (fractured tibia) 1 slightly injured (child)	The seriously injured user was not the user who fell on the line
14/12/2002	The grip broke and fell on the user in the loading area	1 seriously injured (fractured skull)	Not related to the difficult nature of the drag lift
10/02/2002	Fall during departure (sudden)	1 seriously injured (fractured coccyx)	Not related to the difficult nature of the drag lift
31/01/2001	Fall on the line when the lift restarted	1 seriously injured (fractured ankle)	
16/03/2000	Fall on the line	1 seriously injured (fracture)	Drag lift dismantled in 2002.
25/01/2000	Fall on the line - collision with a tower	1 seriously injured (head trauma)	

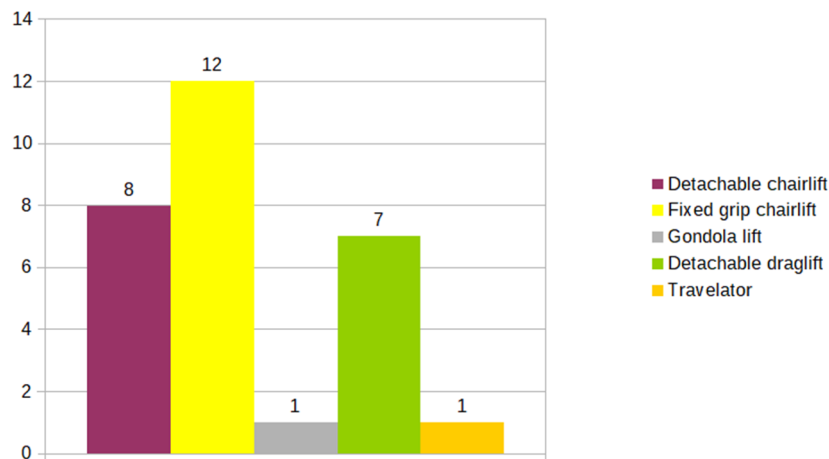
4.3. BREAKDOWN OF SERIOUS INJURIES

4.3.1 Serious injuries by type of system

2022 / 2023 SEASON

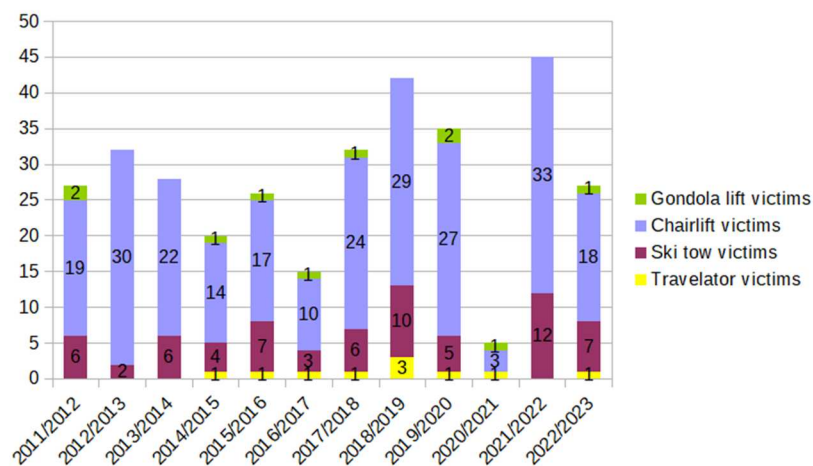
BREAKDOWN OF 27 ACCIDENTS INVOLVING SERIOUS INJURIES (or deaths) BY TYPE OF SYSTEM

This season, accidents with serious injuries occurred on three types of systems: chairlifts (21), drag lifts (7), gondola lifts (1 death) and mountain resort travelators.



Graph 4-3-1-1 above shows the number of serious injuries by type of system for the 2022/2023 season.

MULTI-YEAR TREND



Graph 4-3-1-2 above shows the number of serious injuries (or deaths) per season, by type of system.

*2020/ 2021 lift systems closed to the general public.

Since chairlifts accounted for 60% of total estimated traffic (excluding mountain resort travelators), compared with 22% for drag lifts, the following table shows the ratio of serious injuries per 100 million trips.

MULTI-YEAR TREND

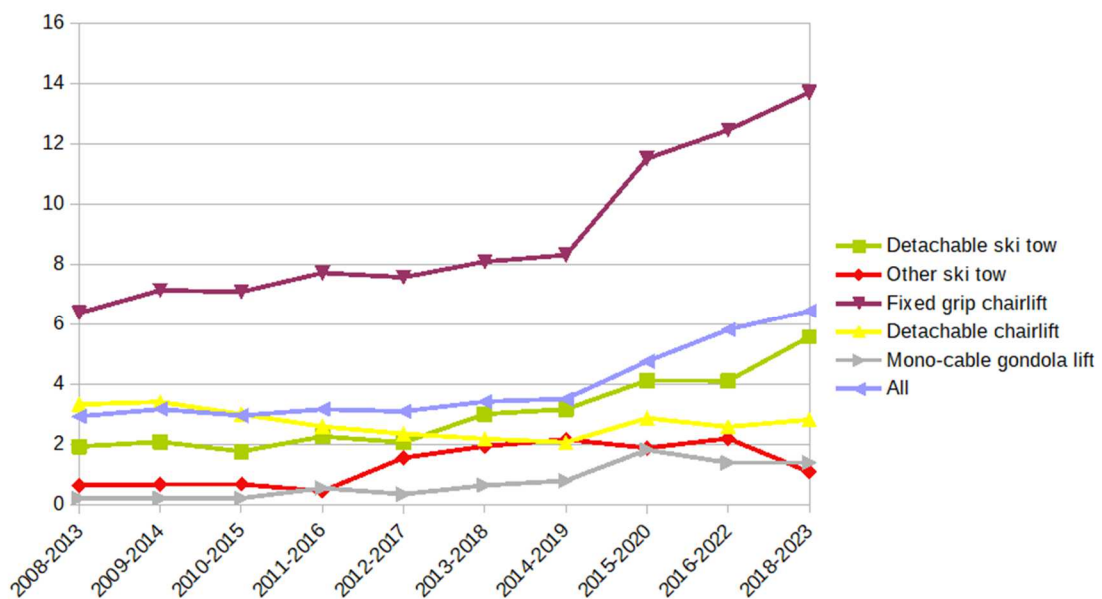
RATIO OF THE NUMBER OF SERIOUS INJURIES PER 100 MILLION TRIPS

	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	
						ratio per 100 million trips	% of traffic
Aerial ropeways with closed vehicles	1.3	0	2.5	n/a	0	1	17
Chairlifts	7.3	7.6	10	n/a	9.7	5.4	60
Ski-tows	3.8	5.6	3.7	n/a	7.3	5.8	22

Graph 4-3-1-1 above shows the ratio of the number of serious injuries per 100 million trips.

The ratio of the number of serious injuries per 100 million trips is a key indicator of accidents on lift systems, and it is important to examine it for the main categories of ski lifts over a period of 5 successive seasons, and to look at how it has changed since 2008.

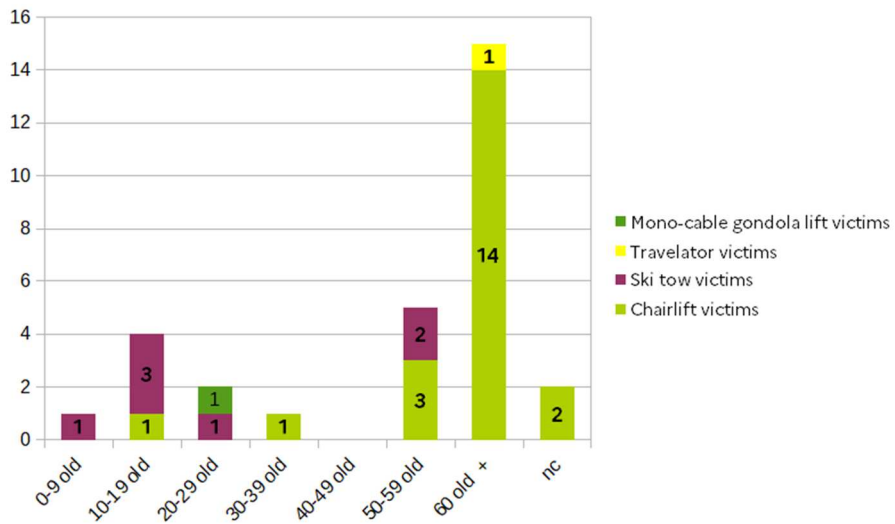
MULTI-YEAR TREND



Graph 4-3-1-3 above shows the ratio's average trend over 5 full seasons, and shows that the ratio for fixed-grip chairlifts is much higher. (14 serious injuries per 100 million trips).

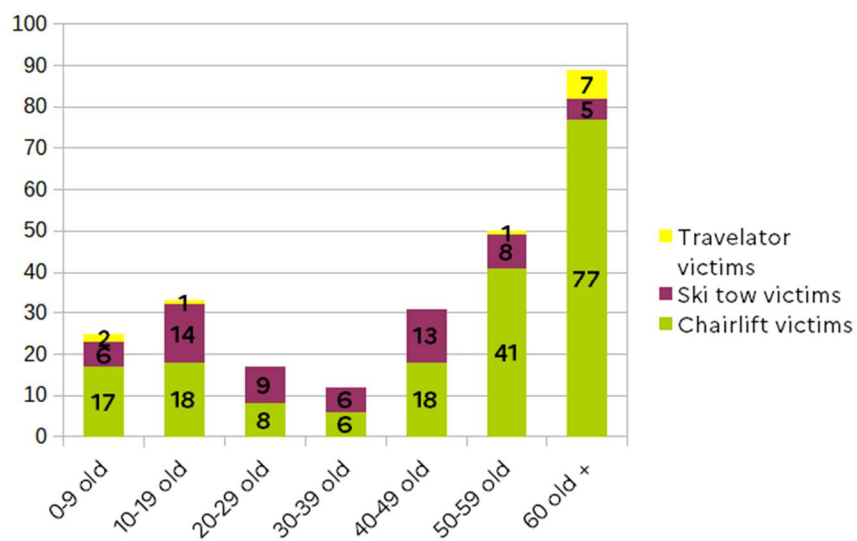
4.3.2 Serious injuries by age

2022 / 2023 SEASON
BREAKDOWN OF 27 ACCIDENTS INVOLVING SERIOUS INJURIES (or deaths) BY VICTIM AGE GROUP



Graph 4-3-2-1 above shows the breakdown of serious injuries for the 2022/2023 season by age group. Two-thirds of those seriously injured were aged over 50, and 90% of them were injured on chairlifts.

MULTI-YEAR TREND



Graph 4-3-2-2 above shows the number of serious injuries (or deaths) by age group (over the past 10 seasons).

4.4. FALLS FROM HEIGHTS ON CHAIRLIFTS WITH OR WITHOUT INJURIES

The aim of this section is to show data for passenger falls from chairlift seats, whether or not they resulted in injury, derived from reports sent by lift operators to STRMTG between 2014 and 2023.

Since the 2014/2015 season, the 3 main causes of these falls from height are (in order):

- improper boarding (44% of cases)
- user clumsiness (23%)

- the remaining 33% is divided between various other causes (loss of consciousness, voluntary jumping, etc.) and undetermined causes.

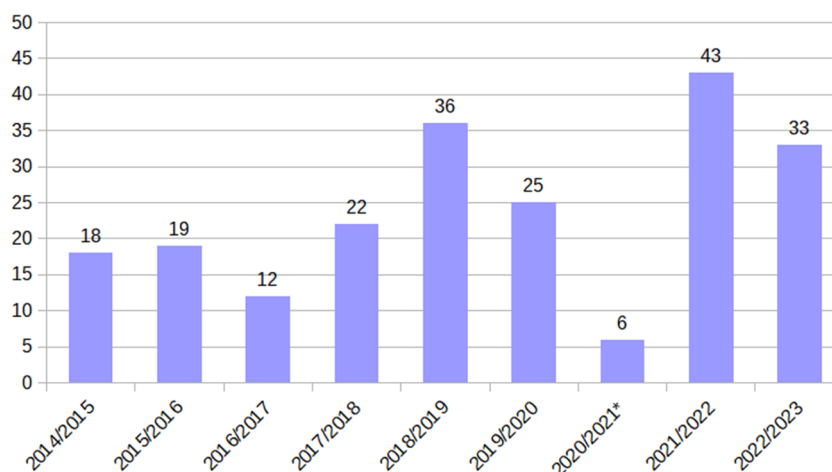
This season, the focus is on falls of over 1.5m in height.

2022 / 2023 SEASON

33 PASSENGERS FELL FROM HEIGHTS ON CHAIRLIFTS

The number of passengers involved in falls from heights on chairlifts (reported by operators) is also down, as is the number of serious injuries. As indicated above, it is thought that these causes may stem from the stress experienced by users during the loading and unloading phases. Considering that the main cause is improper boarding, lift attendants need to continue paying particular attention during loading and unloading.

MULTI-YEAR TREND IN THE NUMBER OF PASSENGERS INVOLVED IN FALLS FROM HEIGHT ON CHAIRLIFTS



Graph 4-4-1 above shows the trend in the total number of passengers involved in falls from height by season on chairlifts.

*2020/ 2021 lift systems closed to the general public.

MULTI-YEAR TREND

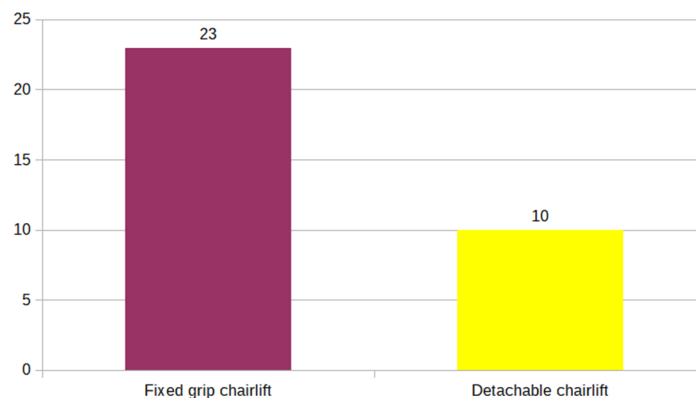
	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Number of passengers involved in a fall from height:	19	12	22	36	25	6	43	33
deaths:				1				
seriously injured:	3	4	7	13	10	2	15	5
slightly injured:	11	5	7	19	12	2	27	25
uninjured:	5	3	8	3	3	2	1	3
Ranking by location * of falls:								
departure (from 0 to 150 m):	10	10	14	12	13	4	18	11
on the line:	5	1	4	8	6	1	10	3
arrival (from 75 m before the unloading area):	4	1	4	16	6	1	15	3

Table 4-4-1 above shows the trend in the location of falls from heights on chairlifts since the 2014/2015 season.

*For the location, reported falls from heights in the loading and unloading areas are not included.

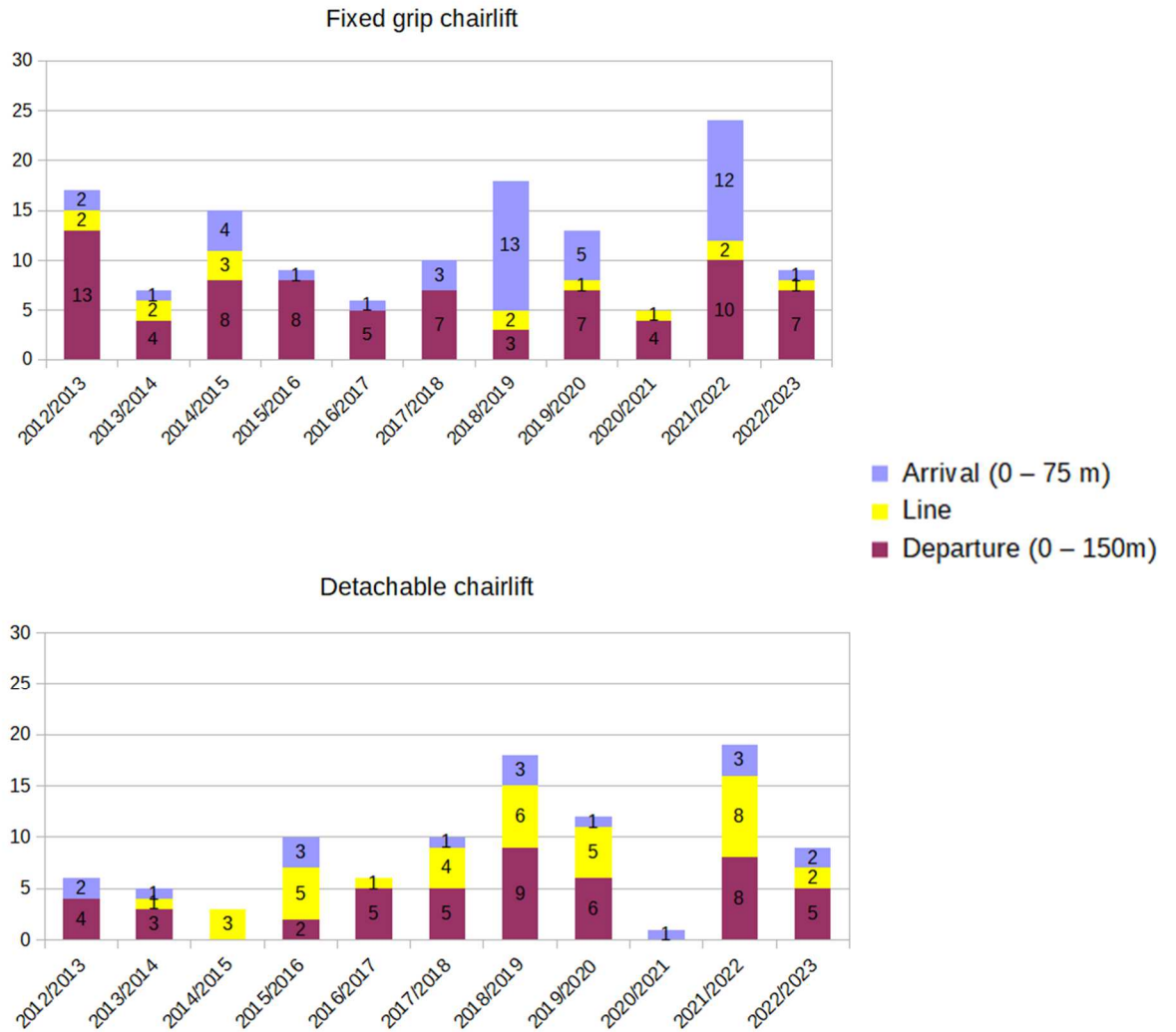
2022 / 2023 SEASON

BREAKDOWN OF THE 33 VICTIMS OF FALLS FROM HEIGHT ON CHAIRLIFTS BY CATEGORY OF CHAIRLIFT



Graph 4-4-2 above shows the breakdown of victims of falls from heights by type of chairlift during the 2022/2023 season.

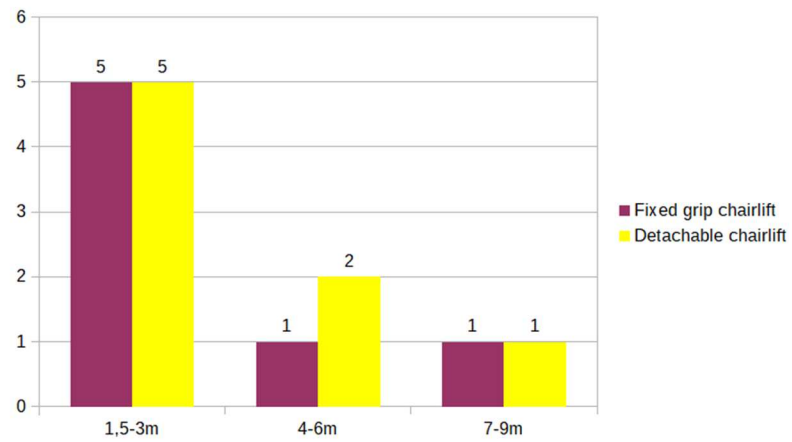
MULTI-YEAR TREND IN THE BREAKDOWN OF VICTIMS OF FALLS FROM HEIGHTS BY TYPE OF CHAIRLIFT AND LOCATION (excluding loading and unloading areas)



Graphs 4-4-3 above show the breakdown of falls from height by season on fixed-grip and detachable-grip chairlifts, and by location of the fall.

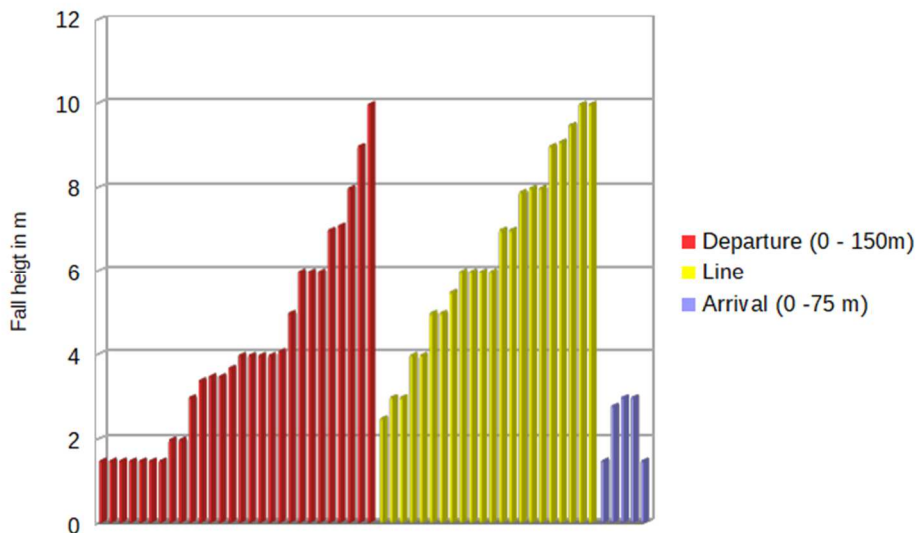
2022 / 2023 SEASON

BREAKDOWN OF THE 15 VICTIMS OF FALLS FROM HEIGHT OVER 1.5 m ON CHAIRLIFTS BY CATEGORY



Graph 4-4-4 above shows the breakdown falls from heights by height on chairlifts during the 2022/2023 season.

MULTI-YEAR TREND IN THE BREAKDOWN OF VICTIMS OF FALLS FROM HEIGHTS BY LOCATION AND HEIGHTS OF OVER 1.50 m.



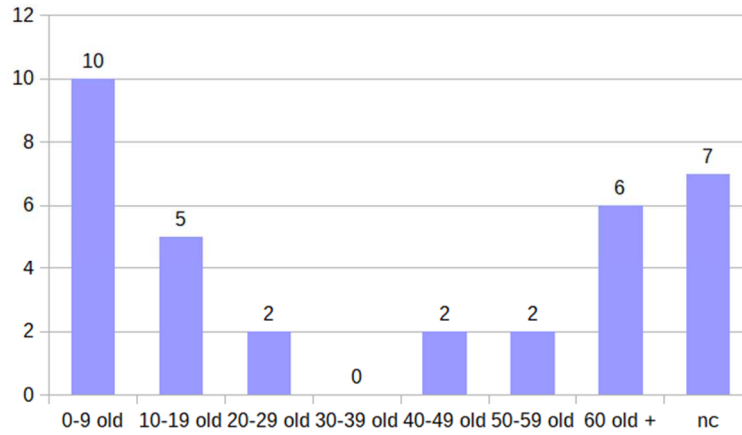
Graph 4-4-5 above shows the breakdown of falls from height on fixed-grip and detachable-grip chairlifts since the 2017/2018 season by location and height of the fall.

4.4.1 Victims of falls from heights by age

2022 / 2023 SEASON

BREAKDOWN OF THE 33 VICTIMS OF FALLS FROM HEIGHT ON CHAIRLIFTS BY AGE GROUP

The majority of victims were in the under-20 and over-50 age brackets. This season, the majority of victims were in the 0-19 age group.

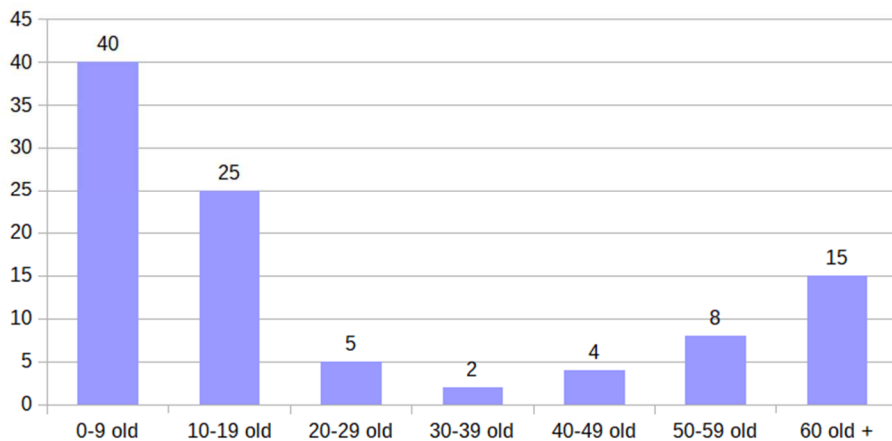


Graph 4-4-1-1 above shows the breakdown of victims of falls from heights by age group during the 2022/2023 season.

MULTI-YEAR TREND

As in the current season, the majority of victims of falls from height since the 2012/2013 season have been in the under-20 and over-50 age brackets. Young children account for the highest number of victims.

According to age group in %



Graphs 4-4-1-2 above show the breakdown of victims of falls from heights by age group (%) since the 2012/2013 season.

CONCLUSION

After two seasons marred by the COVID-19 crisis, mountain activities were very popular with the public and had resumed at a high rate by the 2021/2022 season.

For the 2022/2023 season, the number of passengers using ski resort lifts fell by around 11%. However, there were 546 million trips.

This drop is directly linked to snow conditions in certain mountain ranges.

With regard to lift systems and mountain resort travelators, while 73 systems closed in 2022, 33 new systems are planned for 2023.

With regard to accidents on lift systems during the 2022/2023 season, there was both a drop in the number of serious injuries (27 compared with 45 the previous season) and a drop in the number of serious injuries as a proportion of traffic (4.9 compared with 7.3 the previous season).

The statistics presented in this report must be put into perspective, as the low annual number of serious injuries means that statistical trends are not entirely reliable.

All those involved in the industry are constantly working to make all the lift systems and travelators at mountain resorts as safe as possible. Feedback from serious events is used to enhance collective feedback and analysis by the industry.

APPENDIXS

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Appendix 1 - List of categories of systems

Type of installation	
REVERSIBLE AERIAL ROPEWAY	
Bi-cable reversible aerial ropeway	Mono-cable reversible aerial ropeway
UNI-DIRECTIONAL AERIAL ROPEWAY	
Chairlift	
Detachable chairlift	Fixed grip chairlift
Gondola lift	
Detachable gondola lift	Mono-cable gondola lift
Double-mono-cable gondola lift	Bi-cable rope gondola lift
Fixed grip gondola lift	Combined lift (gondola and chairs)
FUNICULAR RAILWAY	
Reversible funicular	Circulating funicular
SKI-TOW	
Ski-tow with high rope	
Ski-tow with T-bar and-spring box	Ski-tow with platter and spring-box
Detachable ski-tow with platter telescopic	Fixed grip ski-tow with platter telescopic
Ski-tow with low rope	
Fiber rope	Bar / platter
Handle-tow	
Special ropeway	
Inclined elevator	Travelator

Appendix 2 - Calculation method for reported and estimated traffic

The method used to estimate total traffic is the same as that used for previous seasons.

Based on actual traffic reported by operators responding to the DSF survey, STRMTG estimates traffic for all of France.

Reminder of the estimation method:

The working base includes systems for which traffic has been reported. These systems are sorted by mountain ranges, as follows:

- Northern Alps
- Southern Alps
- Pyrenees
- Massif Central
- Jura
- Vosges

and by category (excluding mountain travelators)

The method consists in estimating the traffic carried by a given category of system in a given mountain range based on the traffic reported in the mountain range for the category of system in question. This is estimated using a simple rule of three based on the power moment (MTPU) for all categories of systems.

The choice of power moment is justified by the fact that it shows the attractiveness of the system, since it combines both the throughput and vertical rise.

For example, the estimated traffic on ski-tows with detachable rods (RDP) in the Jura mountain range is obtained by multiplying the declared traffic on RDP in the Jura mountain range by the following coefficient C:

$$C = \frac{\text{Sum of the MTPUs of the ski-tows with detachable rods of the Jura mountain range}}{\text{Sum of MTPUs of the ski tows with detachable rods of the Jura mountain range with reported traffic}}$$

APPENDIX 3- New systems in 2023

3.1 Northern Alps

Dpt	Type of system	Capacity	Resort	System name	Manufacturer	Prime Contractor	Project owner	System : new or with reused components ?	Replaced installations and/or remarks	Characteristics			Cost €M (excl.VAT)
										Length (m)	Verical rise (m)	Troughput (p/hr)	(amount under project management)
38	Ski-tow with spring boxes	1	COL DE MARCIEU	EUILLES	GMM	DCSA	COMMUNAUTÉ DE COMMUNE LE GRÉSIVAUDAN	NEW	Replacement of a ski tow	370,00	65,5	600	0,5
38	Travelator	1	VAUJANY	PIOU-PIOU	FICAP	TIM	ESF VAUJANY	NEW	Replacement of a low level ski tow cable	20	1,5	1500	nc
73	Mono-cable gondola lift	10	VALMOREL	PLANCHAMP	POMA	SARRASOLA	DSV	NEW	Replacement of Altispace 4-person chairlifts with detachable grip	1819	572	3560	19
73	Mono-cable gondola lift	10	LA PLAGNE	GLACIERS TR2	POMA	DCSA	SAP	NEW	Replacement of Bellecote mono-cable gondola lift ; Glacier chairlifts with fixed grips ; Traversée chairlifts with fixed grips	1 032	203	2700	15,72
				GLACIERS TR2						2 009	542		
73	Fixed-grip chairlift	4	LA PLAGNE	CHALET DE BELLECOTE	INGELO	DCSA	SAP	NEW with reused components	Replacement of Chalet de Bellecote chairlift with fixed grips. Part of the components were recovered from the Traversée chairlift with fixed grips	833,71	287	2400	2,8
73	Ski-tow with spring boxes	1	HAUTELUCE	RUELLE	POMA	DCSA	SECMH	NEW	Replacement of the Ruelle ski-tow with spring boxes. Slightly different layout	300	55	650	0,5
73	Ski-tow with spring boxes	1	LES SAISIES	VERDETS	GMM	CNA	SPL DES SAISIES	NEW	Replacement of Verdet ski tows with detachable rods	416	38	800	0,5
73	Travelator	1	LES ARCS	MIRANTIN	FICAP	CNA	ARC AVENTURES	NEW		29	3	800	nc
73	Travelator	1	TIGNES	LE LAC	FICAP	CNA	ÉVOLUTION 2	NEW		35	4	800	nc
73	Travelator	1	MÉRIBEL	ESF 4 RHODOS	SUNKID	DCSA	ESF MÉRIBEL	NEW		48	4,5	1575	0,2
73	Travelator	1	LES SAISIES	nc	FICAP	CNA	ESI	NEW		22	3	800	nc
73	Travelator	1	LA PLAGNE – AIME 2000	LUTIN	FICAP	CIME	ESF AIME 2000	NEW		20	2	2500	0,08
73	Travelator	1	PRALOGNAN	TAPIS 1	SUNKID	SARRASOLA	ESF PRALOGNAN	NEW		23	2	1500	0,05
73	Travelator	1	PRALOGNAN	TAPIS 2	SUNKID	SARRASOLA	ESF PRALOGNAN	NEW		28	2	1500	0,05
74	Travelator	6	AVORIAZ	LAC INTRÊTS	LEITNER	SARRASOLA	SERMA	NEW	Replacement of Lac-Intrêts 4-person chairlift with detachable grips	1828	494	3000	9
74	Travelator	10	CHAMONIX – MONTENVERS	MER DE GLACE	DOPPELMAYR	DCSA	COMPAGNIE DE LA MER DE GLACE	NEW	Replacement of Mer de Glace pulsed movement gondola lift on a route more suited to glacier access	583,33	203,35	1500	8,6
74	Fixed-grip chairlift	4	PASSY	BARMUS	GMM	MTC	COMMUNE DE PASSY PLAINE JOUX	NEW		1132	230,00	1800	3,9
74	Low-level ski tow	1	FLAINE	BAMBI	4Experience	DCSA	ESF FLAINE	NEW		40	4	540	0,03
74	Travelator	1	LE PLENEY	NABOR	FICAP	CNA	SA PLENEY	NEW		140	20	7	nc
74	Travelator	1	PRAZ SUR ARLY	JARDIN D'ENFANTS	SUNKID	CNA	ESF PRAZ SUR ARLY	NEW		72	7		nc

3.2 Southern Alps

Dpt	Type of system	Capacity	Resort	System name	Manufacturer	Prime Contractor	Project owner	System : new or with reused components ?	Replaced installations and/or remarks	Characteristics			Cost €M (exci.VAT) (amount under project management)
										Length (m)	Verical rise (m)	Troughput (p/hr)	
04	Travelator	1	ST JEAN MONCLAR	nc	nc	TIM	ESF MONCLAR	New with some recovery for reuse	MEB travelator reused	35	3	nc	nc
05	Mono-cable gondola lift	10	SERRE CHEVALIER	PONTILLAS	POMA / COMAG	DCSA	SCV DOMAINE SKIABLE	NEW		3605,74	864	2800	18
05	Mono-cable gondola lift	10	MONTGENEVRE	ROCHER DE L'AIGLE	DOPPELMAYR	CNA	RARM	NEW	Replacement of ROCHER DE L'AIGLE chairlift with fixed gips	1715	424	2220	12
05	Ski-tow with spiring boxes	1	ABRIES	DE LA BRUNE	GMM	MTC	SYNDICAT MIXTE DU QUEYRAS	NEW		1085	332	500	2,06
05	Travelator	1	LES ORRES	EXERCICE	FICAP	CNA	ESF LES ORRES	NEW		37,00	6	800	nc

3.3 Pyrénées

Dpt	Type of system	Capacity	Resort	System name	Manufacturer	Prime Contractor	Project owner	System : new or with reused components ?	Replaced installations and/or remarks	Characteristics			Cost €M (exci.VAT) (amount under project management)
										Length (m)	Verical rise (m)	Troughput (p/hr)	
65	Chairlift with detachable grips	6	SAINT LARY SOULAN	FORET	MND	DCSA	ALTISERVICE	NEW		1558,31	603,70	2400	nc
65	Travelator	1	TOURMALET	GRAND TOURMALET	nc	TIM	GRAND TOURMALET	NEW	Replacement of TOURMALET low-level skit tow	35	2	nc	nc
65	Low-level skit tow	1	CAUTERETS	JARDIN	POMA/GMM	TIM	ESF CAUTERETS	NEW with some recycling		65	5	nc	nc
66	Mono-cable detachable chairlifts and gondolas	6	FORMIGUERES	CALMAZEILLE	MND	TIM	TRIO PYRÉNÉES	NEW	Replacement of CALMAZEILLE chairlift with fixed grip	1440	347	2365	11
66	Mono-cable gondola lift	10	FONT ROMEU P2000	AIRELLES	LEITNER	TIM	ALTISERVICE	NEW	Replacement of AIRELLES mono-cabe gondola lift	1761	187	2000	11

3.4 Jura Vosges

Dpt	Type of system	Capacity	Resort	System name	Manufacturer	Prime Contractor	Project owner	System : new or with reused components ?	Replaced installations and/or remarks	Characteristics			Cost €M (exci.VAT) (amount under project management)
										Length (m)	Verical rise (m)	Troughput (p/hr)	
88	Chairlift with fixed grips	4	LA BRESSE	LA LANDE	CCM	CNA	LA BRESSE LABELLEMONTAGNE	NEW	Replacement of DE LA LANDE chairlift with fixed grips	921	195	2400	4,3
68	Travelator	1	SCHNEPFENRIED	nc	SUNKID	MTC	SM VALLÉE DE MUNSTER	NEW		117	25		0,75

APPENDIX 4 – Aerial ropeways

4.1 Fleet and changes

Type of system	2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		
	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Age of oldest
2-person fixed-grip chairlift	117	34	109	35	100	36	95	37	83	38	77	39	69	40	66	40	64	43	61	43	58	44	62
3-person fixed-grip chairlift	131	29	124	30	117	31	109	32	104	33	101	34	90	34	84	45	81	38	77	38	76	39	47
4-person fixed-grip chairlift	353	15	353	16	349	16	348	17	348	17	349	18	341	20	339	19	334	23	329	23	320	24	40
6-person fixed-grip chairlift	5	9	7	12	6	10	6	11	6	9	6	10	6	11	6	12	6	14	6	14	7	15	25
2-person detachable chairlift	1	32	1	33	1	34	1	35	1	36	1	37	1	38	1	39	1	40	1	41	1	42	42
4-person detachable chairlift	106	18	108	19	103	20	103	20	100	21	99	21	98	25	98	23	97	27	96	27	97	28	38
6-person detachable chairlift	197	7	203	8	218	8	229	9	239	9	247	10	258	11	268	11	272	13	277	13	281	14	34
8-person detachable chairlift	7	11	7	12	8	11	8	12	8	13	8	14	8	15	8	12	8	18	8	18	8	19	22
4-person detachable gondola lift	17	37	15	37	14	38	14	39	13	40	13	41	11	41	11	42	8	43	8	43	6	46	53
5-person detachable gondola lift	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	52	1	53	1	54	54
6-person detachable gondola lift	39	30	38	31	38	32	38	33	38	34	37	35	34	40	32	37	32	39	32	39	30	41	57
8-9-person detachable gondola lift	26	8	26	9	26	10	26	11	26	12	28	12	29	12	32	13	32	13	33	15	33	16	29
10-12-person detachable gondola lift	36	18	39	17	41	17	42	18	43	19	44	19	48	19	49	19	50	23	56	16	60	16	38
14-16-person detachable gondola lift	7	15	7	16	7	17	7	18	7	19	7	20	7	21	7	22	7	24	7	24	6	25	31
Mono-cable pulsed movement gondola lift	10	28	10	29	10	30	10	31	10	32	9	34	9	35	9	36		37	9	38	8	38	41
Mono-cable reversible aerial ropeway	9	19	9	20	8	20	8	21	8	22	8	23	8	24	8	25	9	28	9	28	9	29	42
Mono-cable aerial ropeway with chairlift and gondolas	11	6	14	5	16	5	15	7	16	7	16	8	18	8	19	9	20	12	21	10	24	10	19
Funitel and double mono-cable lift	10	21	10	22	10	23	10	24	10	25	10	26	10	27	10	28	10	30	10	30	10	31	38
Reversible funitel	4	12	4	13	4	14	4	15	4	16	4	16	4	17	4	18	4	20	4	20	4	21	37
Bi-cable aerial ropeway	45	40	44	40	43	41	45	40	57	45	57	46	57	47	55	46	55	45	54	47	54	47	92
Other types of mono-cable aerial ropeway fleet																	1	47	1	48	1	49	49
Weighted age for the entire aerial ropeway fleet	19 ans		20 ans		21 ans		21 ans		21 ans		22 ans		22 ans		22 ans		24,5 ans		24,14 ans		24,8 ans		

4.2 Distribution by mountain range

Type of system	Nothern Alps		Southern Alps		Pyrénées		Massif Central		Jura		Vosges		Other	
	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age
2-person fixed-grip chairlift	26	45	19	42	10	43	1	57	1	54	0	0	1	45
3-person fixed-grip chairlift	44	40	14	38	9	36	1	38	7	39	1	45	0	0
4-person fixed-grip chairlift	194	25	55	20	51	24	11	19	4	17	4	31	1	20
6-person fixed-grip chairlift	4	14	1	18	2	14	0	0	0	0	0	0	0	0
2-person detachable chairlift	1	42	0	0	0	0	0	0	0	0	0	0	0	0
4-person detachable chairlift	71	29	12	27	8	23	3	24	1	24	2	37	0	0
6-person detachable chairlift	212	14	39	12	23	16	1	8	3	12	3	12	0	0
8-person detachable chairlift	7	19	1	21	0	0	0	0	0	0	0	0	0	0
4-person detachable gondola lift	4	44	2	49	0	0	0	0	0	0	0	0	0	0
5-person detachable gondola lift	0	0	1	54	0	0	0	0	0	0	0	0	0	0
6-person detachable gondola lift	24	39	2	40	3	48	0	0	1	40	0	0	0	0
8-9-person detachable gondola lift	29	16	1	17	2	22	0	0	0	0	0	0	1	2
10-12-person detachable gondola lift	49	17	4	22	5	9	0	0	1	34	0	0	1	1
15-16-person detachable gondola lift	5	27	0	0	2	22	0	0	0	0	0	0	0	0
Mono-cable pulsed movement gondola lift	6	39	2	36	0	0	0	0	0	0	0	0	0	0
Mono-cable reversible aerial ropeway	6	25	2	36	0	0	0	0	0	0	0	0	1	37
Mono-cable aerial ropeway with chairlifts and gondolas	13	8	9	14	0	0	0	0	2	10	0	0	0	0
Funitel and double mono-cable lift	8	33	1	38	0	0	1	14	0	0	0	0	0	0
Reversible funitel	4	21	0	0	0	0	0	0	0	0	0	0	0	0
Bi-cable aerial ropeway	33	42	5	53	11	64	2	47	0	0	0	0	2	34
Other types of mono-cable aerial ropeways	1	49	0	0	0	0	0	0	0	0	0	0	0	0
Weighted age for the entire aerial ropeway fleet of the mountain range	24 ans		25 ans		28 ans		25 ans		28 ans		28 ans		22 ans	

APPENDIX 5 – Drag lifts

5-1 Fleet and changes

Type of system	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		
	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Age of oldest
Ski-tow with fixed rods	261	30	249	31	234	32	223	33	217	34	209	34	197	36	192	38	188	39	179	51	60
Ski-tow with detachable rods	1392	36	1352	37	1317	38	1272	39	1250	40	1226	40	1204	41	1177	43	1153	44	1129	47	77
Low-level ski tow	66	8	62	9	62	9	61	10	64	11	63	11	59	12	60	16	62	16	63	17	26
Ski-tow with spring boxes	178	12	187	13	197	13	205	13	216	13	222	13	227	14	228	16	234	16	231	16	58
Low-level cable tow	71	19	58	19	56	19	52	21	51	21	49	21	45	22	45	24	48	25	45	24	50
Low-level rope tow	329	16	330	17	329	17	317	18	315	18	298	18	282	20	276	22	271	23	264	24	46
Weighted age for the entire drag lift fleet	29 ans		30 ans		31 ans		31 ans		32 ans		32 ans		33 ans		35 ans		36 ans		39 ans		

5.2 Distribution by mountain range

Type of system	Northern Alps		Southern Alps		Pyénées		Massif Central		Jura		Vosges		Corse		Other	
	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age
Ski-tow with fixed rods	88	40	44	42	21	39	5	36	5	35	13	40	2	33	1	-
Ski-tow with detachable rods	515	45	228	46	136	46	83	43	78	43	81	44	7	41	1	-
Low-level ski tow	34	18	8	17	10	17	2	21	4	19	4	12	1	18	0	0
Ski-tow with spring boxes	167	17	25	14	17	21	9	14	5	11	6	14	1	7	1	17
Low-level cable tow	27	28	4	14	2	22	2	18	7	26	3	11	0	0	0	0
Low-level rope tow	155	24	42	25	20	24	3	21	30	23	13	22	1	12	0	0
Weighted age for the entire drag lift fleet	35 ans		40 ans		39 ans		39 ans		38 ans		38 ans		33 ans		-	

APPENDIX 6 – Other systems

Type of system	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		
	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Number	Average age	Age of oldest
Funicular railway	19	47	19	48	20	47	24	45	24	46	24	47	24	48	24	59	24	59	25	58	134
Inclined lift	6	25	6	26	4	30	3	31	3	32	3	33	3	34	3	35	3	36	3	37	46
Cog railway	5	69	5	70	5	71	5	72	5	73	5	74	5	75	5	76	5	78	5	79	119
Miscellaneous equipment	3	53	2	68	2	69	2	70	1	23	1	24	1	25	1	26	0	0	0	0	0

APPENDIX 7 - Events included in the analysis

Date of accident	Accident category	Category	No. of injured	Type of injury	Cause	Result	Location
21/01/23	B	Detachable chairlift	1	serious	User behaviour – Clumsiness	User fell	Line
27/01/23	B	Ski tow with detachable rods	1	serious	User behaviour – Recklessness	Collision with a tower	Line
28/01/23	B	Detachable chairlift	1	serious	User behaviour – Recklessness	User fell	Loading area
29/01/23	B	Chairlift with fixed grips	1	serious	User behaviour – Recklessness	Impact with seat	Loading area
30/01/23	B	Ski tow with detachable rods	1	serious	User behaviour – Clumsiness	User fell	Line
01/02/23	B	Ski tow with detachable rods	1	serious	User behaviour – Clumsiness	User fell	Line
01/02/23	B	Detachable chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
08/02/23	B	Ski tow with detachable rods	1	serious	User behaviour – Clumsiness	User fell	Line
12/02/23	B	Detachable chairlift	1	serious	User behaviour – Clumsiness	Caught by seat	Unloading area
12/02/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	Impact with seat	Unloading area
12/02/23	A	Fixed-grip chairlift	1	serious	operational problem – Staff failure	User fell	Unloading area
13/02/23	B	Detachable chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
14/02/23	B	Ski tow with detachable rods	1	serious	User behaviour – Clumsiness	User fell	Line
19/02/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
21/02/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
22/02/23	A	Fixed-grip chairlift	1	serious	operational problem – Staff failure	User fell	Unloading area
25/02/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Line
28/02/23	A	Ski tow with detachable rods	1	serious	operational problem – Mechanical failure	User fell	Line
28/02/23	C	Fixed-grip chairlift	1	serious	External cause – Third party	Impact with seat	Unloading area
03/03/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Start
04/03/23	B	Detachable chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
06/03/23	B	Fixed-grip chairlift	1	serious	User behaviour – Recklessness	User fell	Unloading area
16/03/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
22/03/23	B	Fixed-grip chairlift	1	serious	User behaviour – Clumsiness	User fell	Unloading area
25/03/23	B	Ski tow with detachable rods	1	serious	User behaviour – Clumsiness	User fell	Loading area
01/04/23	B	Doume mono-cable lift with detachable grip	1	death	User behaviour – Recklessness	User fell	Line
17/04/23	B	Travelator	1	serious	User behaviour – Clumsiness	User fell	Line



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