



Die Welterbe-Gletscher – Wächter des Klimas

Les glaciers du patrimoine mondial – Sentinelles du changement climatique

Stefanie Börsig



elhotzo

Brûlez immédiatement le rapport de l'IPCC, il n'y a aucun intérêt à expliquer à nos petits enfants que nous savions que tout se passerait comme ceci



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IPCC-Report sofort verbrennen, null Bock meinen Enkeln erklären zu müssen dass wir wussten dass alles so kommen würde

...

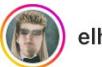


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Gefällt pascal.zurek.voice und 73.410 weiteren Personen

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elhotzo

Bravo à tous les scientifiques, encore en train de faire l'effort d'écrire les rapports sur le climat, en sachant qu'aucun gouvernements ne respectera pas les mesures à prendre, cela doit être un metier de merde



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shoutout an alle Wissenschaftler*innen, die sich immernoch die Mühe machen diesen Klimareport zu verfassen, obwohl sie wissen dass ihn eh keine Regierung beachten wird, muss ein scheiss Job sein



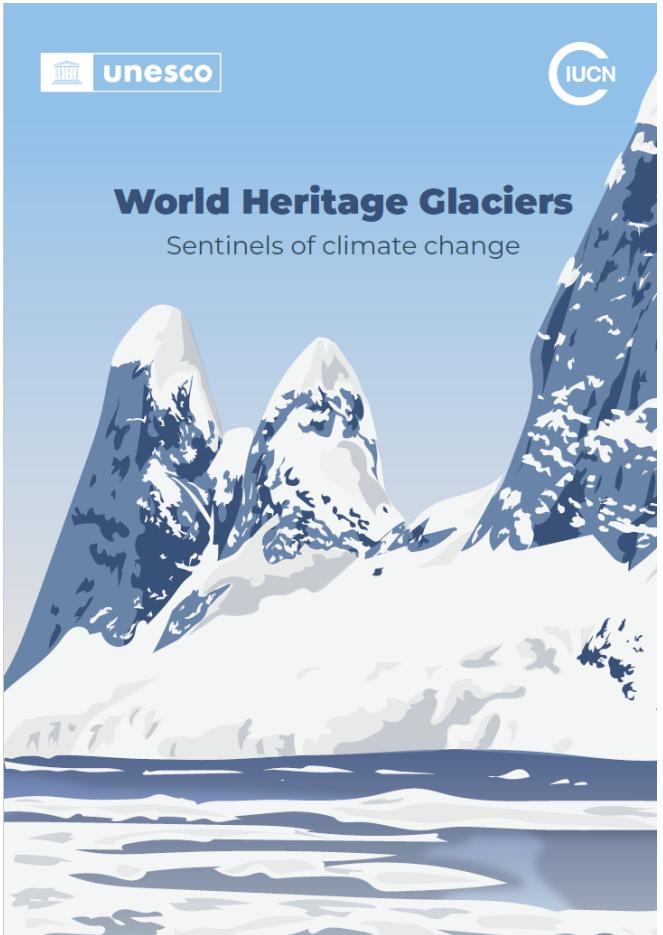
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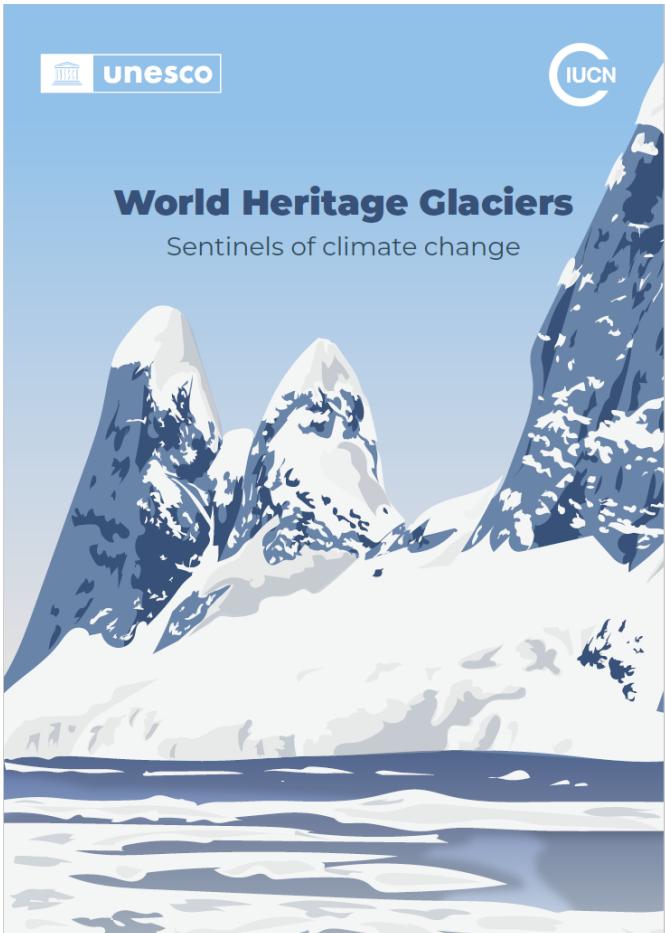
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UNESCO-Bericht 2022



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Ernesto Uttoni Kamirez, Richard Verrier
Graphic design: Scienseed and Philippe Lauby

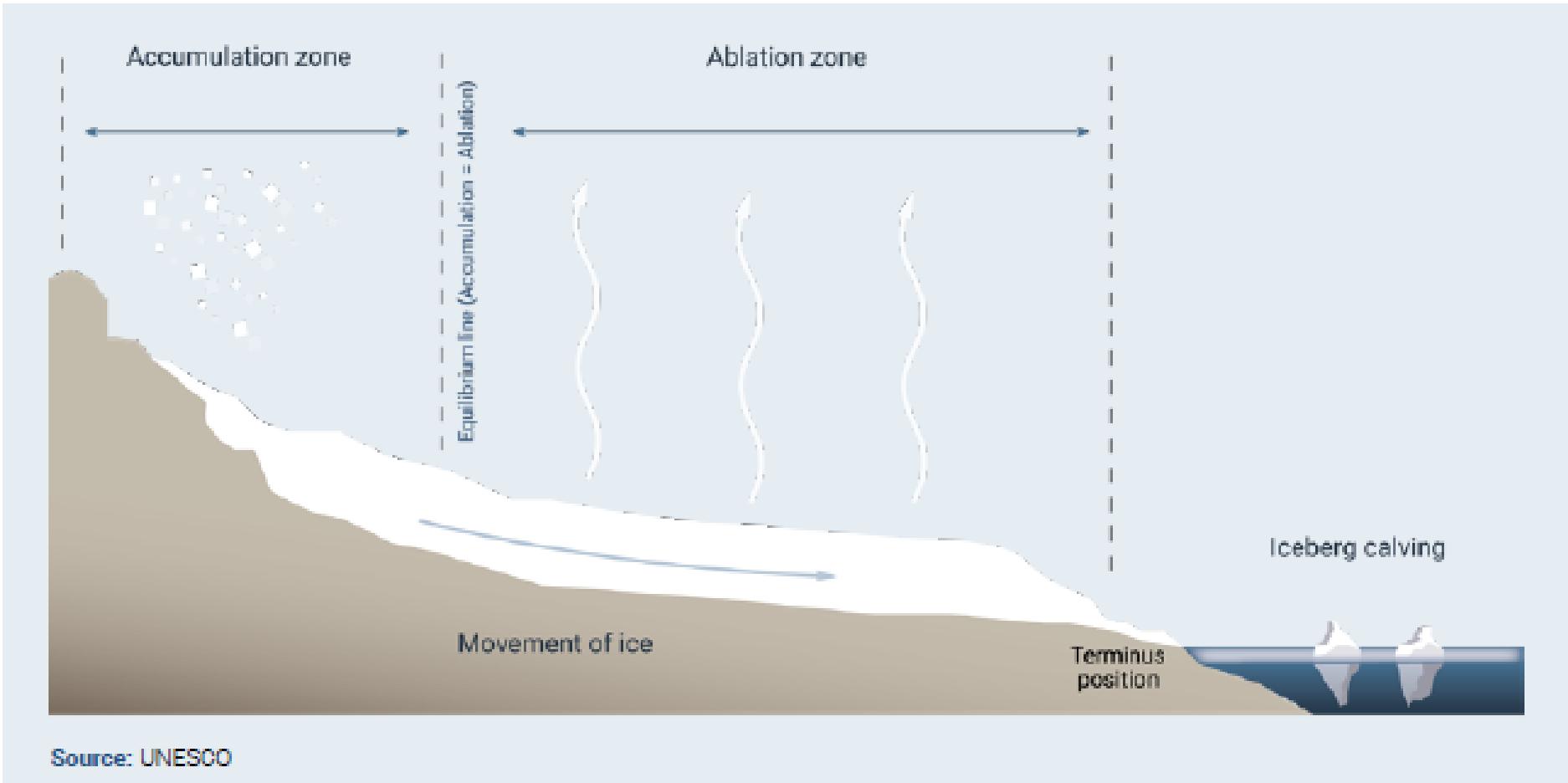
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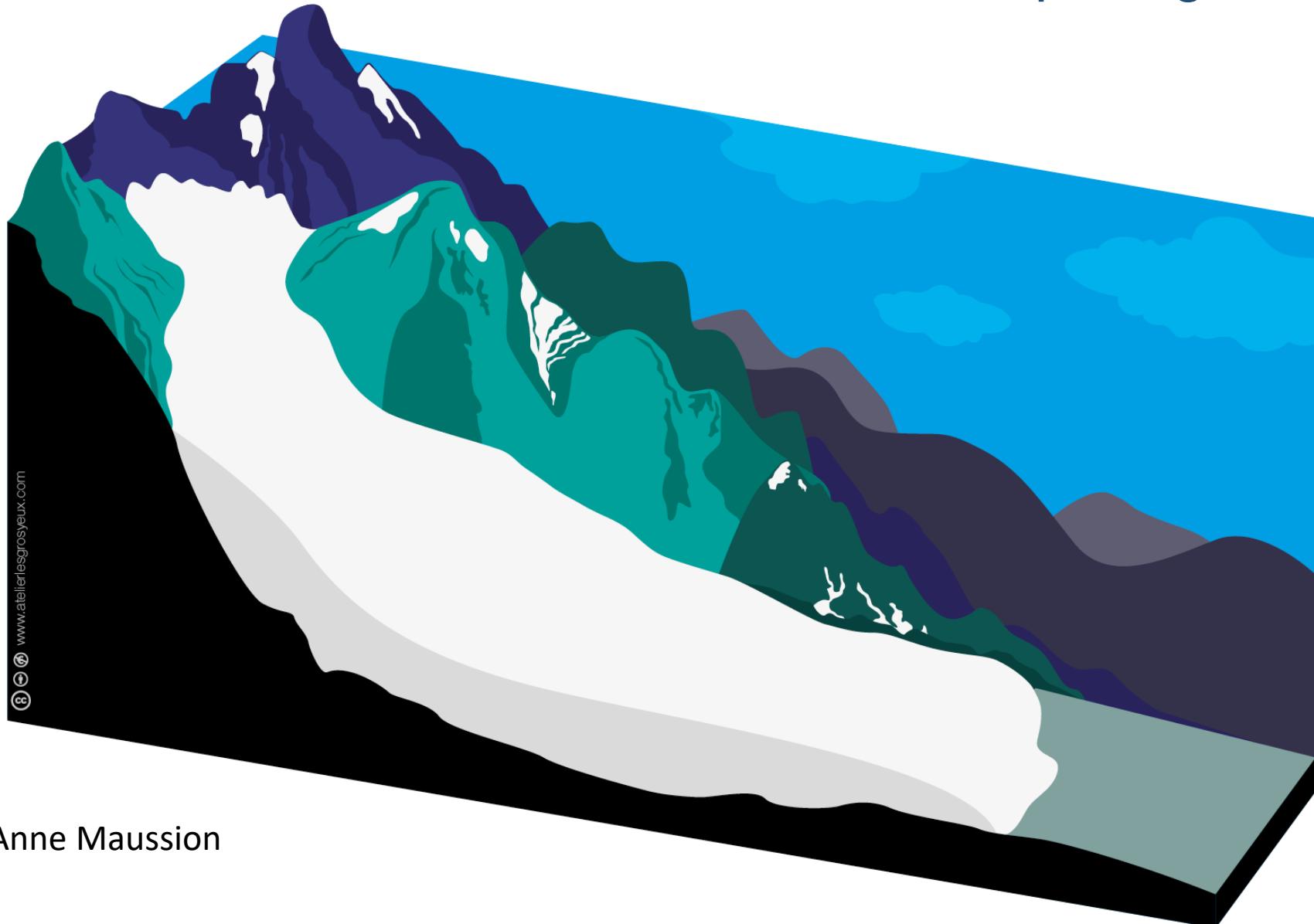


What is a glacier?



Was ist ein Gletscher?

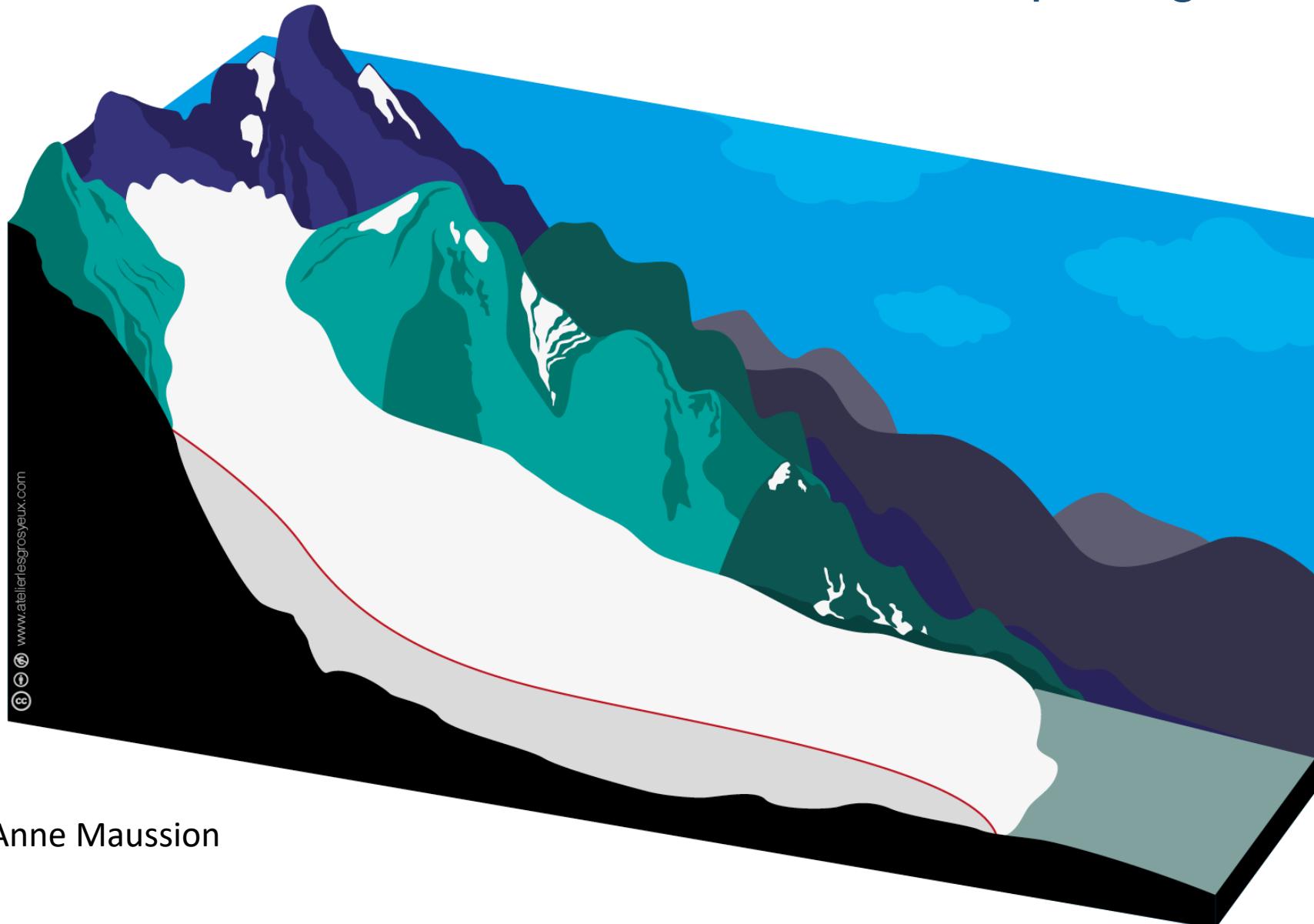
Qu'est-ce qu'un glacier ?



Grafiken von Anne Maussion

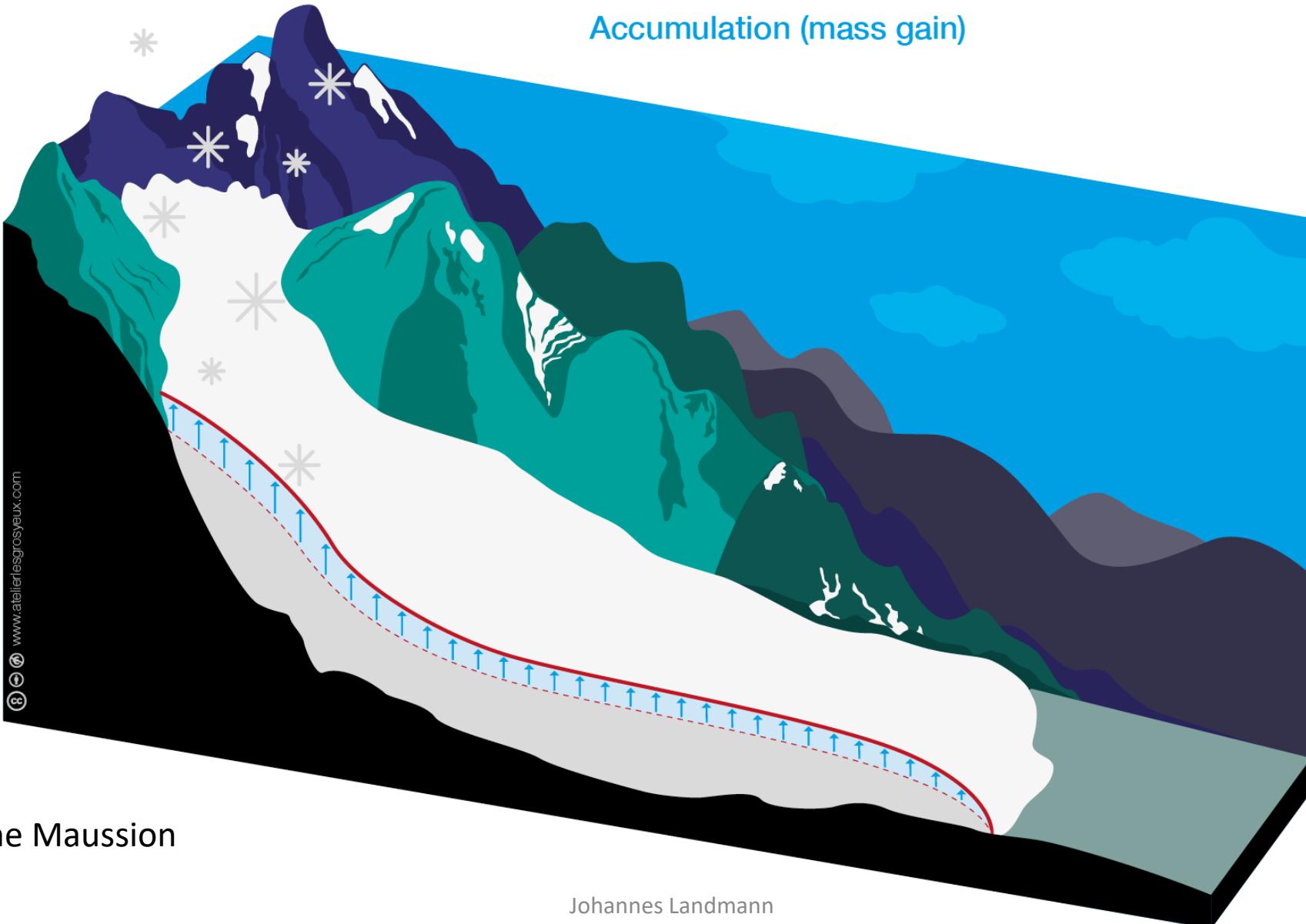
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Qu'est-ce qu'un glacier ?

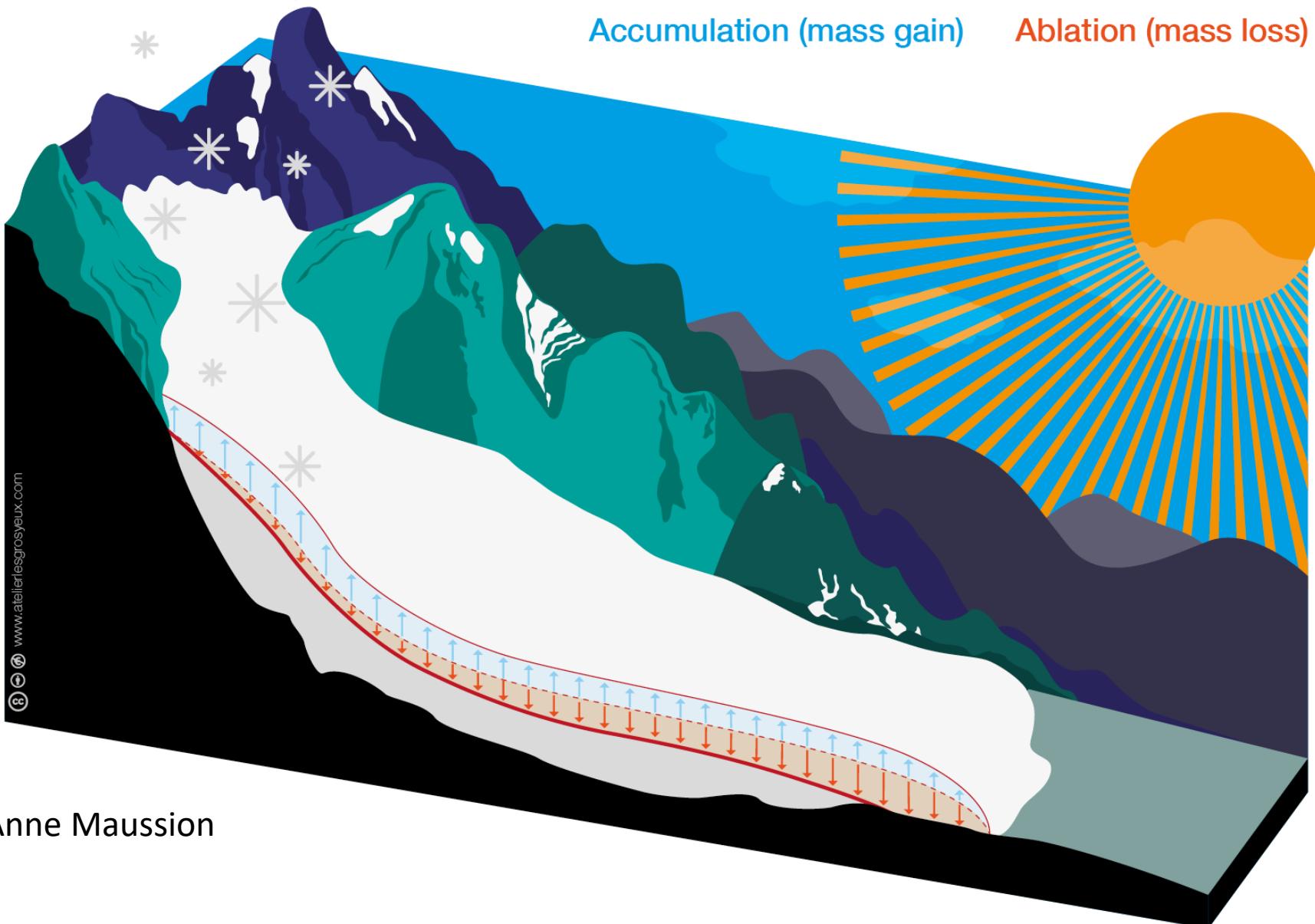


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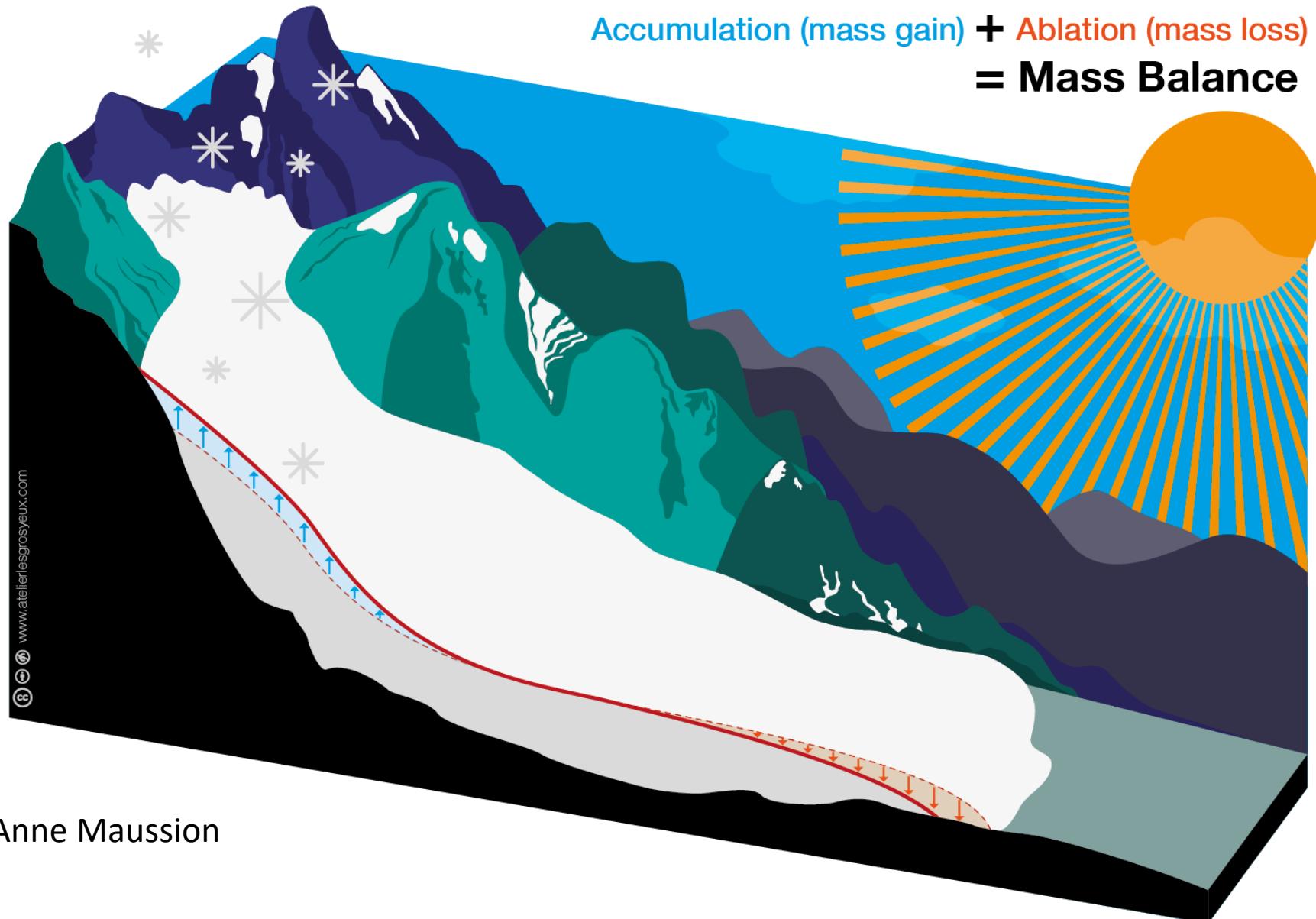
Was ist ein Gletscher?



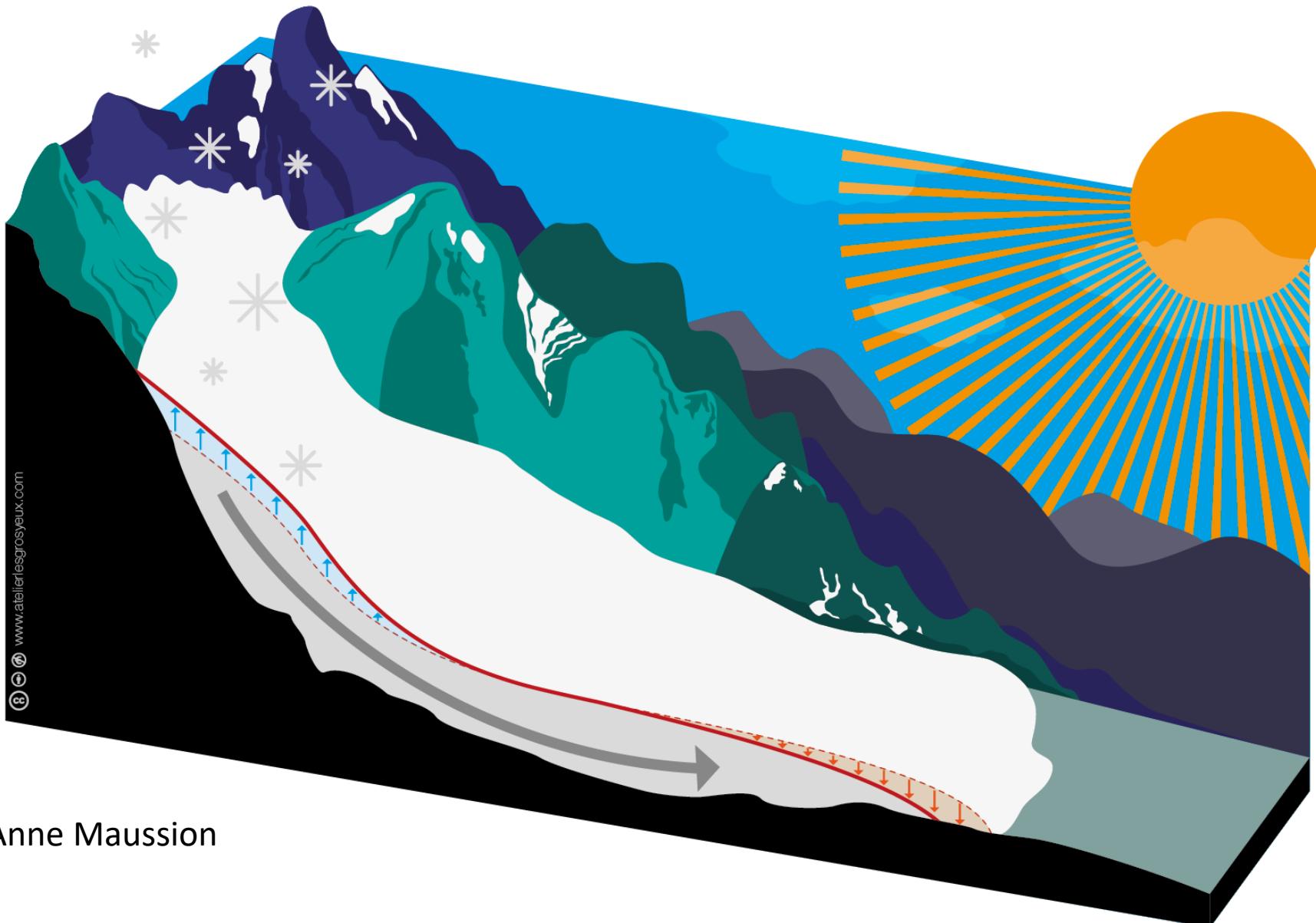
Was ist ein Gletscher?



Was ist ein Gletscher?



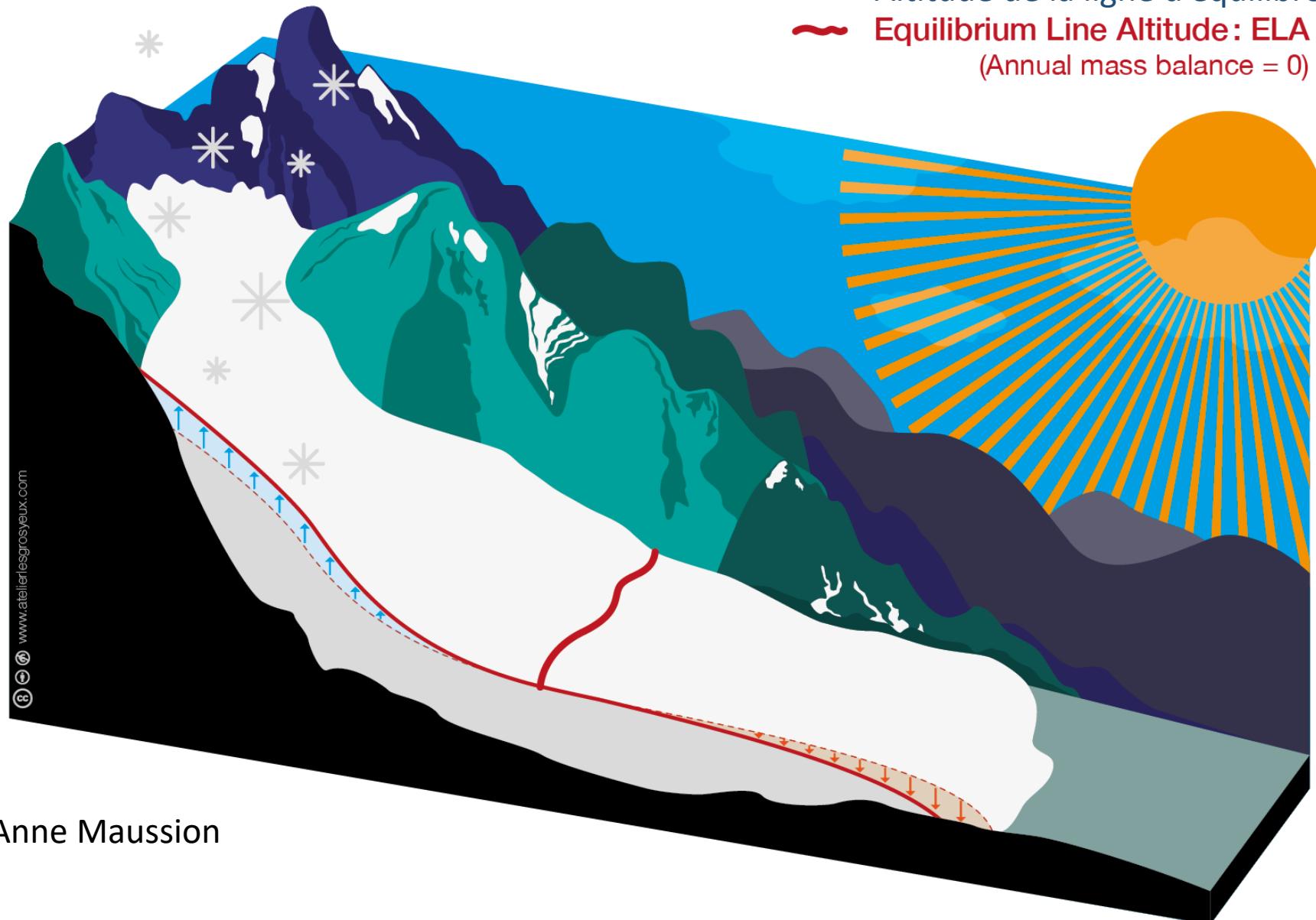
Was ist ein Gletscher?



Grafiken von Anne Maussion

Was ist ein Gletscher?

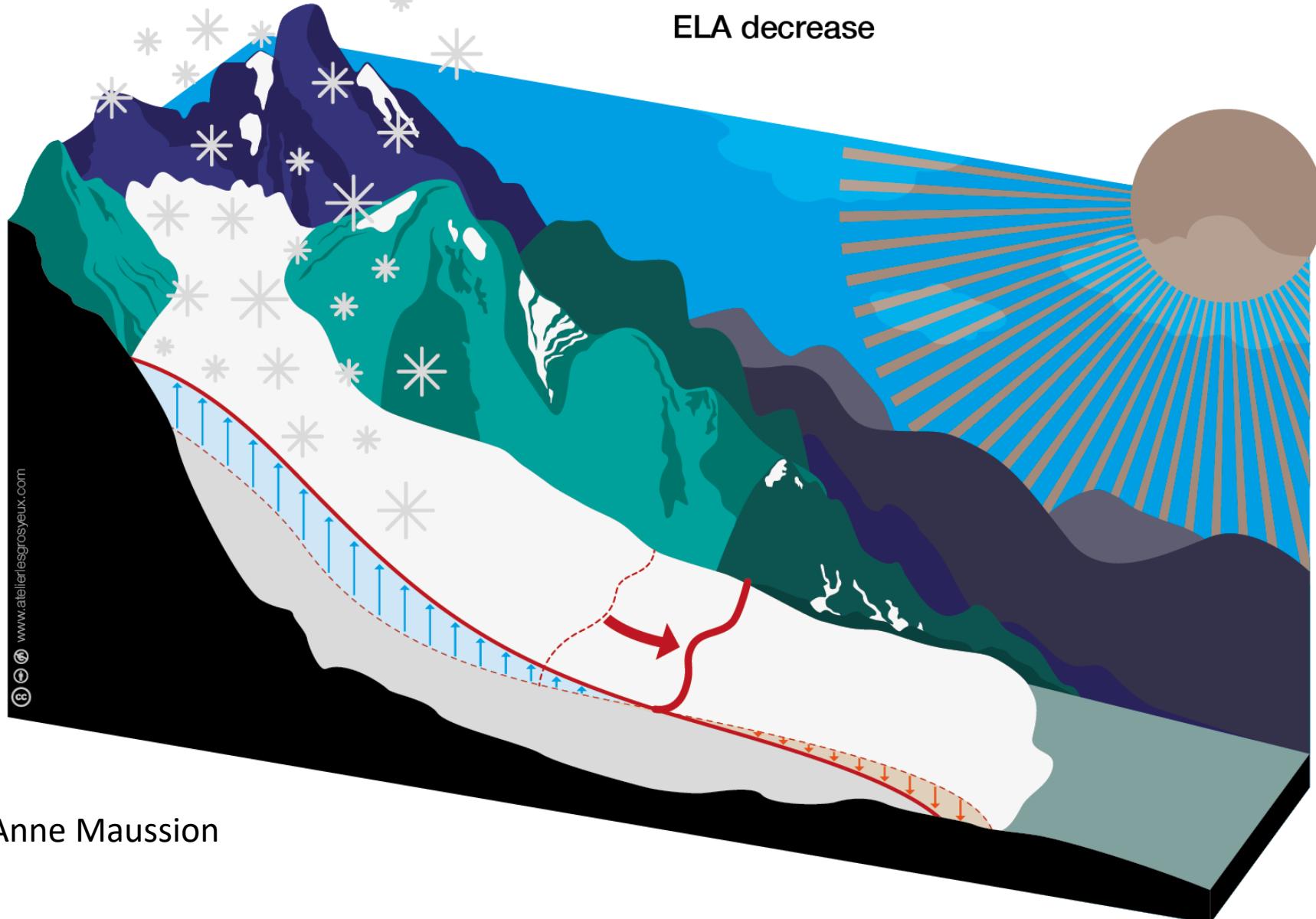
Höhe der Gleichgewichtslinie
Altitude de la ligne d'équilibre
Equilibrium Line Altitude: ELA
(Annual mass balance = 0)



Grafiken von Anne Maussion

Was ist ein Gletscher?

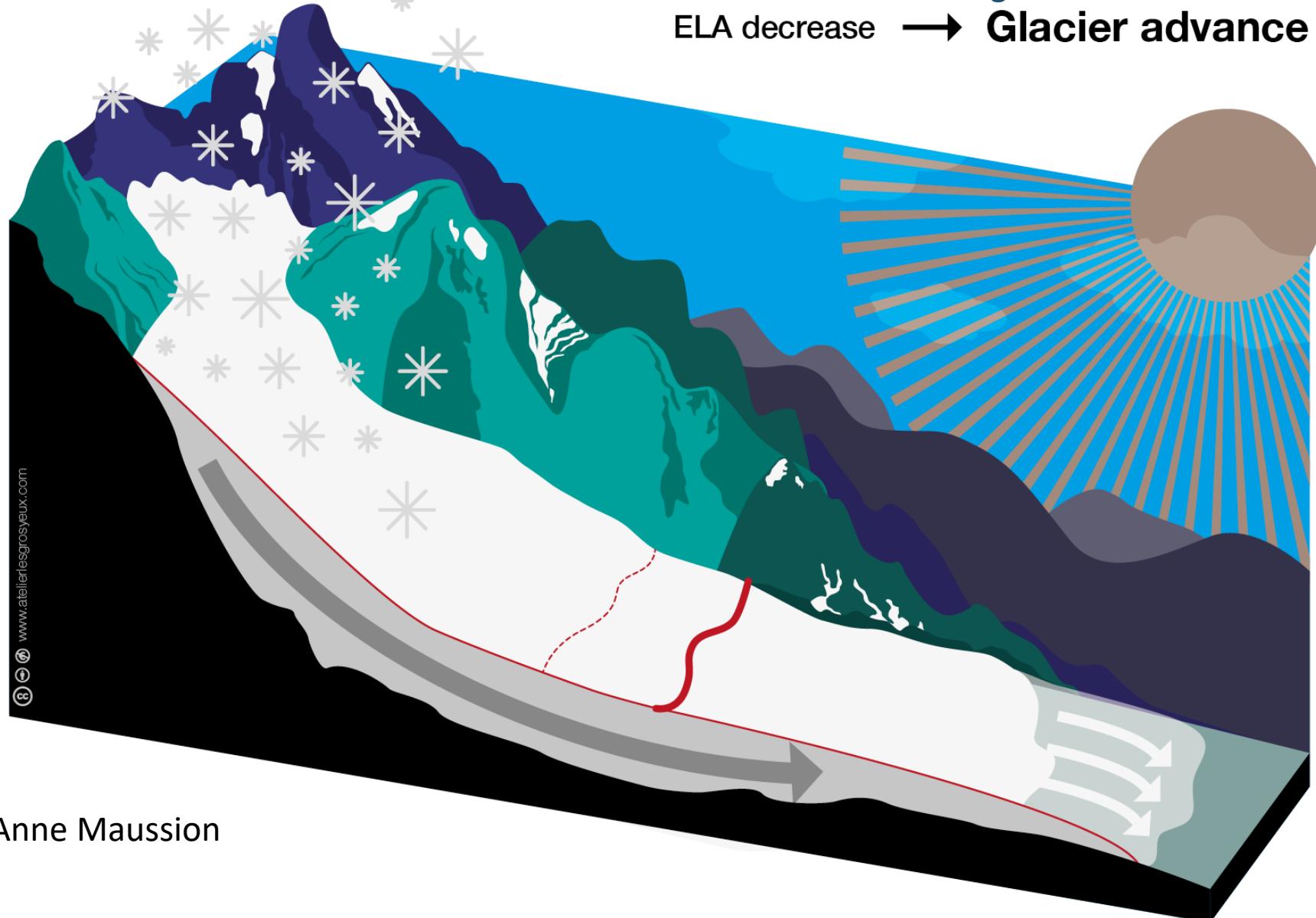
ELA sinkt
ELA diminue
ELA decrease



Grafiken von Anne Maussion

Was ist ein Gletscher?

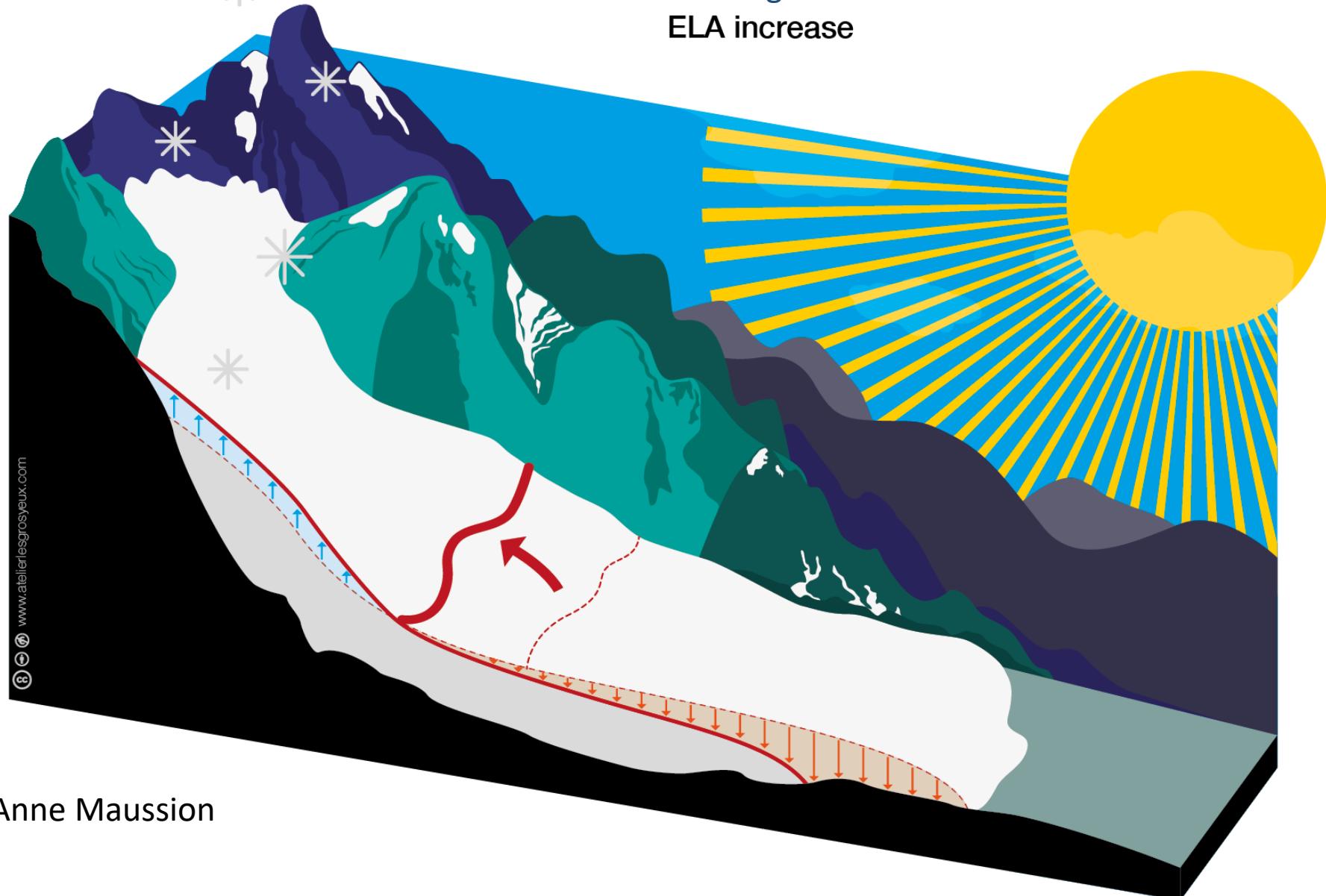
ELA sinkt
ELA diminue
ELA decrease → Gletscher rückt vor
→ glacier avance
→ **Glacier advance**



Grafiken von Anne Maussion

Was ist ein Gletscher?

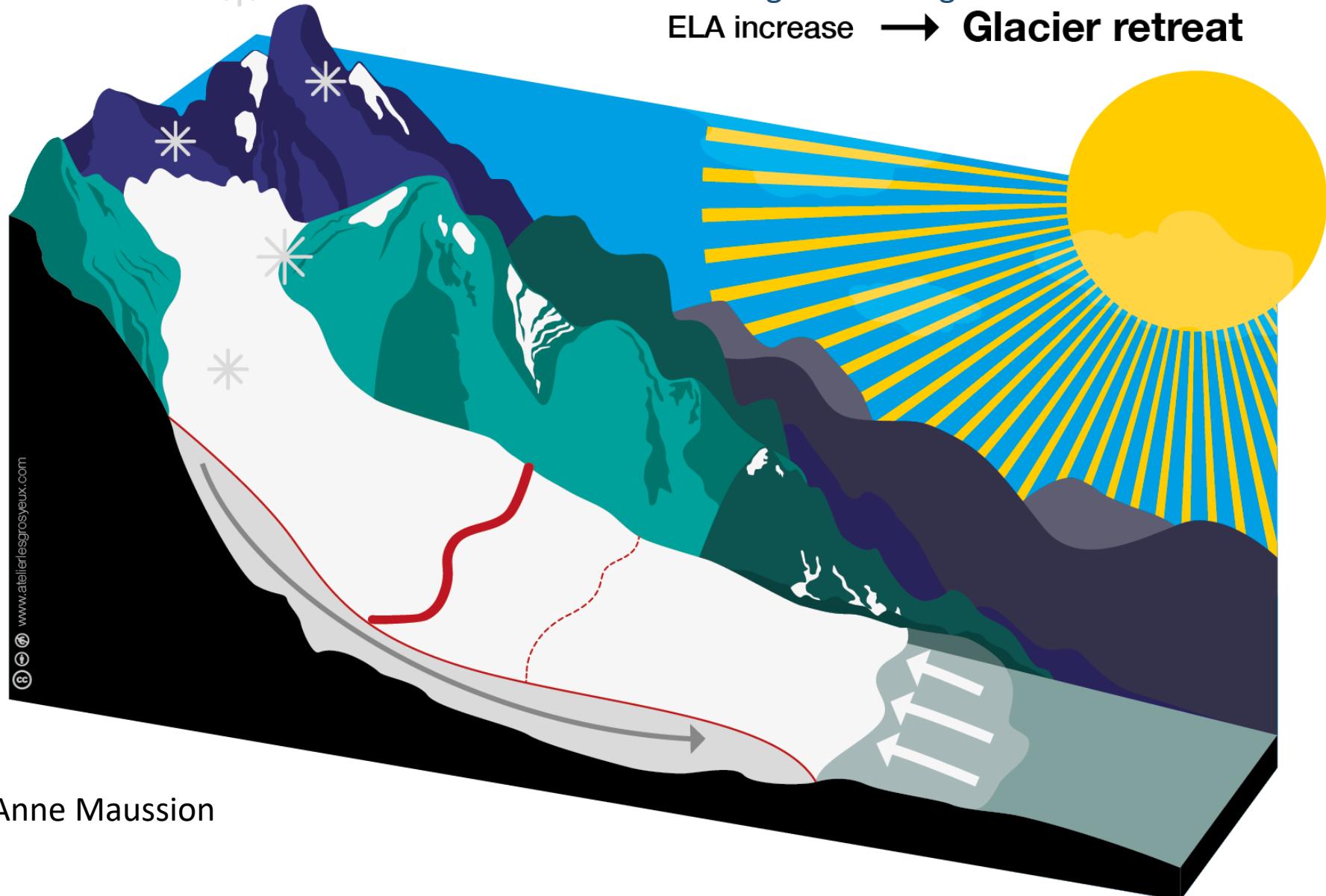
ELA erhöht sich
ELA augmente
ELA increase



Grafiken von Anne Maussion

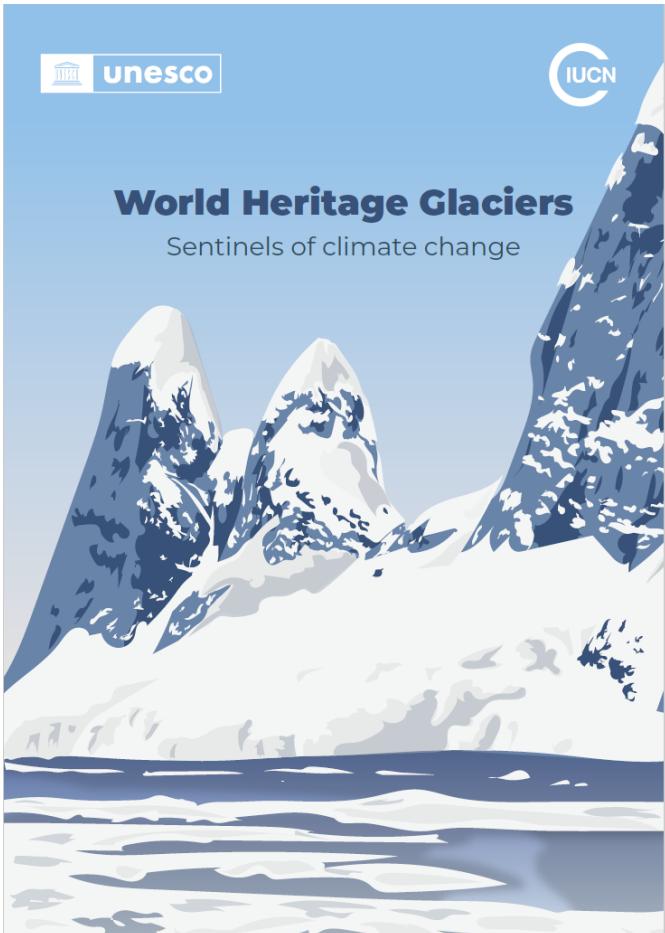
Was ist ein Gletscher?

ELA erhöht sich -> Gletscher zieht sich zurück
ELA augmente -> glacier se retire
ELA increase → **Glacier retreat**



Grafiken von Anne Maussion

UNESCO-Bericht 2022



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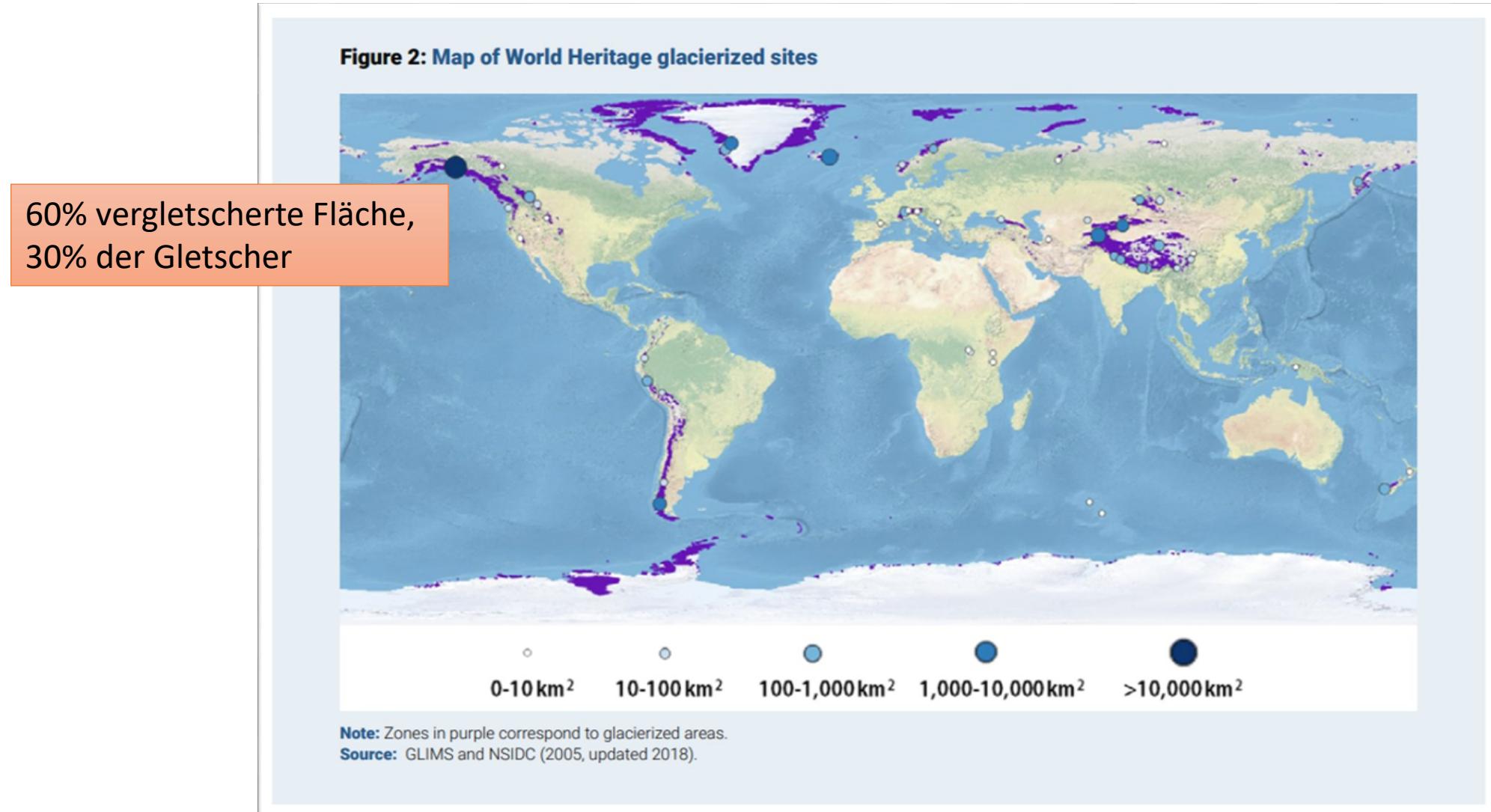


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Gletscher in Welterbestätten

Glaciers dans les sites du patrimoine mondial



Herausragende Welterbe-Gletscher

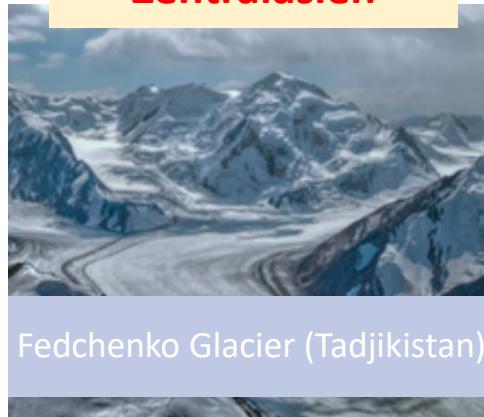
Remarquable glaciers du patrimoine mondial

Fließt mit großer Geschwindigkeit



Jakobshavn Isbrae (Greenland)

Größter Talgletscher in Zentralasien



Fedchenko Glacier (Tadjikistan)

Teil des höchsten Gletscher-Systems



Khumbu Glacier (Nepal)

Letzte verbleibende Gletscher in Afrika



Mount Kilimanjaro (Tanzania)

Größter Piedmont Gletscher der Welt



Malaspina Glacier (USA)

Größter Gletscher in den Alpen



Great Aletsch Glacier (Switzerland)

Einzigartige natürliche Schönheit



Los Glaciares National Park (Argentina)

Signifikanter Verlust von Eismasse und Anstieg des Meeresspiegels im frühen 21. Jhdt

Perte de masse de glace significante & montée du niveau de la mer au début du 21^{ème} siècle

Table 2: Largest net ice mass losses in World Heritage sites from 2000 to 2020 and equivalent sea-level rise

	Site	Glacier region (According to the Randolph Glacier Inventory)	Net ice mass loss from 2000 to 2020 in billion tonnes (Gt)	Equivalent sea-level rise from 2000 to 2020 (mm)
	All World Heritage glacierized sites (50)		1,163	3.22
1	Kluane / Wrangell-St. Elias / Glacier Bay / Tatshenshini-Alsek (Canada, United States of America)	Alaska	487	1.35
2	Ilulissat Icefjord (Denmark)	Arctic (Greenland ice sheet)	350	0.97
3	Vatnajökull National Park – Dynamic Nature of Fire and Ice (Iceland)	Arctic (Iceland)	132	0.37
4	Los Glaciares National Park (Argentina)	Southern Andes	88	0.24
5	Aasivissuit – Nipisat Inuit Hunting Ground between Ice and Sea (Denmark)	Arctic (Greenland ice sheet)	39	0.11
6	Tajik National Park (Mountains of the Pamirs) (Tajikistan)	Central Asia	12	0.03
7	Te Wahipounamu – South West New Zealand (New Zealand)	New Zealand	10	0.03
8	Canadian Rocky Mountain Parks (Canada)	Western Canada and USA	9	0.02
9	Swiss Alps Jungfrau-Aletsch (Switzerland)	Central Europe	7	0.01
10	Xinjiang Tianshan (China)	Central Asia	4	0.01

Source: Analysis (Box 4) of Hugonnet et al., 2021 data in World Heritage sites outside the polar ice sheets. Results for the two sites located in Greenland were estimated using Mouginot et al., 2019. Results should be taken with caution given existing uncertainties.

Signifikanter Verlust
von Eismasse und
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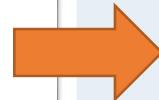


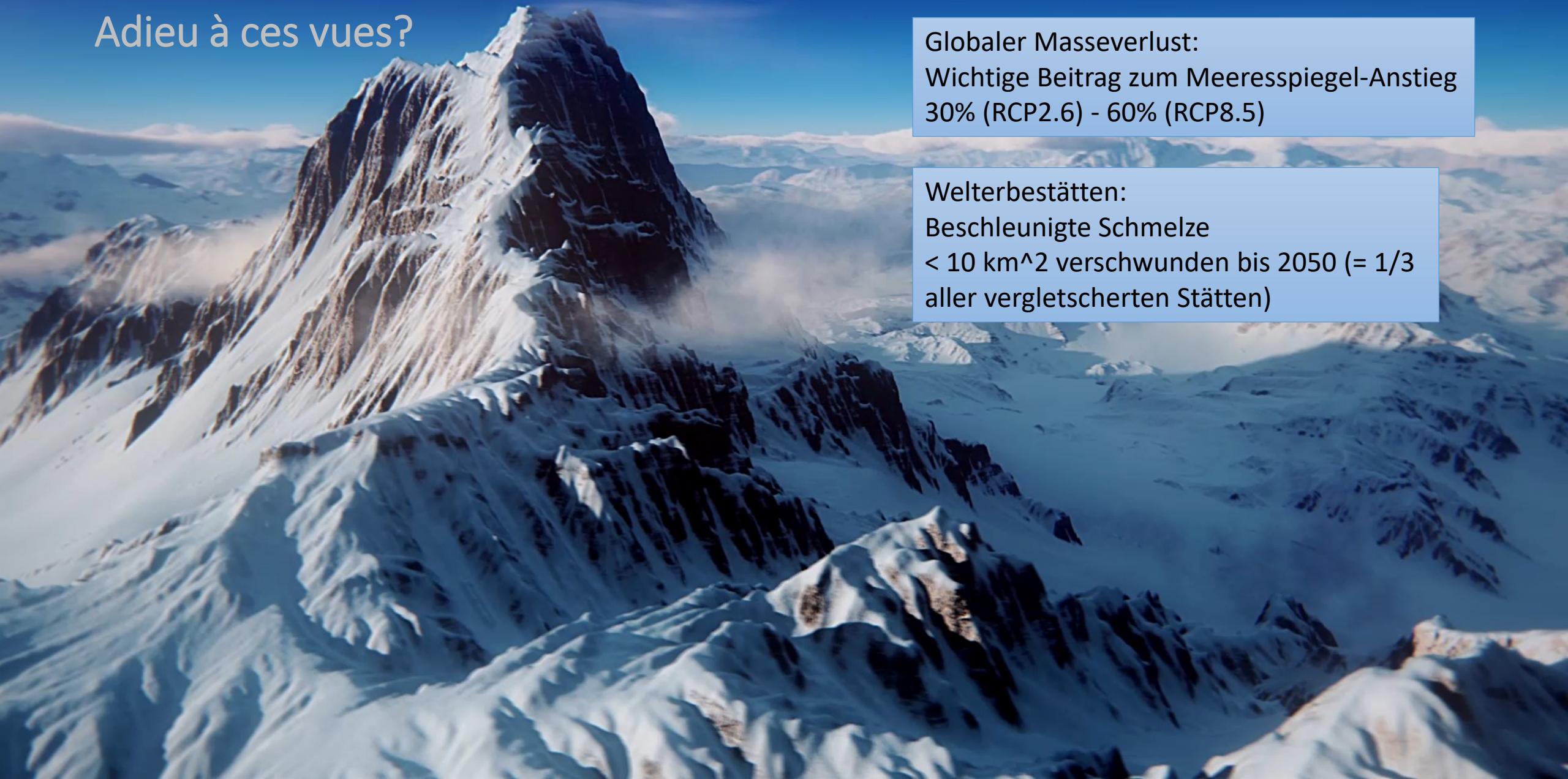
Table 3: Glacier ice losses relative to 2000 in World Heritage sites

Rank	Code	Site	Glacierized area (km²)	Mass in 2000 (Gt)	Mass loss relative to 2000(%)
1	Yu	Three Parallel Rivers of Yunnan Protected Areas (China)	17	0.3	57.2
2	La	Los Alerces National Park (Argentina)	54	1.4	45.6
3	Uv	Uvs Nuur Basin (Mongolia, Russian Federation)	82	2.8	37.0
4	Si	Sichuan Giant Panda Sanctuaries – Wolong, Mt Siguniang and Jiajin Mountains (China)	28	0.7	35.9
5	Nf	West Norwegian Fjords – Geirangerfjord and Naeroyfjord (Norway)	24	0.9	33.2
6	Ts	Western Tien-Shan (Kazakhstan, Kyrgyzstan, Uzbekistan)	24	0.6	27.1
7	Ol	Olympic National Park (United States of America)	39	1.3	26.5
8	Wg	Waterton Glacier International Peace Park (Canada, United States of America)	42	0.7	26.5
9	Ja	Swiss Alps Jungfrau-Aletsch (Switzerland)	319	25.7	25.9
10	Lp	Laponian Area (Sweden)	180	9.5	25.7
11	Ma	Golden Mountains of Altai (Russian Federation)	239	10.4	19.8
12	Tw	Te Wahipounamu - South West New Zealand (New Zealand)	884	53.9	19.2
13	Ka	Volcanoes of Kamchatka (Russian Federation)	296	21.9	16.6
14	Gh	Great Himalayan National Park Conservation Area (India)	155	7.0	16.0
15	Rm	Canadian Rocky Mountain Parks (Canada)	973	59.4	15.9
16	Hu	Huascarán National Park (Peru)	493	17.9	15.2
17	Sa	Sagarmatha National Park (Nepal)	249	16.7	14.7
18	Kh	Khangchendzonga National Park (India)	284	16.2	13.0
19	Lg	Los Glaciares National Park (Argentina)	2,612	687.6	12.9
20	Nd	Nanda Devi and Valley of Flowers National Parks (India)	194	10.8	10.5
21	Mp	Historic Sanctuary of Machu Picchu (Peru)	15	0.4	8.0
22	Sg	Sangay National Park (Ecuador)	39	1.0	7.3

Perte de masse de glace
significante & montée du
niveau de la mer au début du
21^{ème} siècle

Lebewohl zu diesen Anblicken?

Adieu à ces vues?



Globaler Masseverlust:

Wichtige Beitrag zum Meeresspiegel-Anstieg
30% (RCP2.6) - 60% (RCP8.5)

Welterbestätten:

Beschleunigte Schmelze

< 10 km² verschwunden bis 2050 (= 1/3
aller vergletscherten Stätten)

Relevanz von Gletschern in Welterbestätten?

Pertinence des glaciers dans les sites du patrimoine mondial?

"When glaciers melt rapidly, millions of people face water scarcity and the increased risk of natural disasters such as flooding, and millions more may be displaced by the resulting rise in sea levels. This study highlights the urgent need to cut greenhouse gas emissions and invest in Nature-based Solutions, which can help mitigate climate change and allow people to better adapt to its impacts."

Dr Bruno Oberle
IUCN Director General

"This report is a call to action. Only a rapid reduction in our CO₂ emissions levels can save glaciers and the exceptional biodiversity that depends on them. COP27 will have a crucial role to help find solutions to this issue. UNESCO is determined to support states in pursuing this goal."



Audrey Azoulay
UNESCO Director-General

Schlüsselrolle in
ökologischer
Nachhaltigkeit

Repräsentation

Große Bekanntheit,
globale Reichweite &
Inspirationskraft

Bewusstsein schaffen

Verstärkte
Klimaschutmass-
nahmen unterstützen

Interessenvertreter/
wichtigste Akteure
mobilisieren

Wichtigste Schutzmaßnahmen

Principales mesures de protection

Limiting global warming to 1.5°C could save glaciers in 2/3 of World Heritage sites

"When glaciers melt rapidly, millions of people face water scarcity and the increased risk of natural disasters such as flooding, and millions more may be displaced by the resulting rise in sea levels. This study highlights the urgent need to cut greenhouse gas emissions and invest in Nature-based Solutions, which can help mitigate climate change and allow people to better adapt to its impacts."

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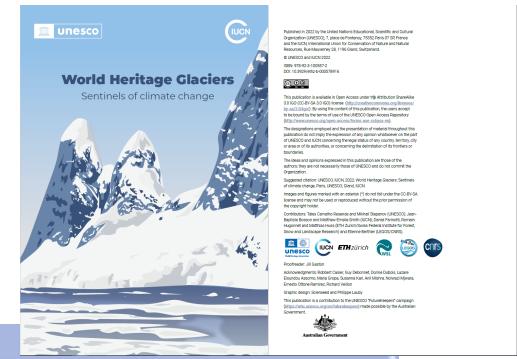
Audrey Azoulay
UNESCO Director-General

Wichtigste Schutzmaßnahmen

Principales mesures de protection



Fazit / Conclusion



Das Ziel: / Le but :

„Schutz des außergewöhnlichen universellen Wertes, der Integrität und der Authentizität von Welterbestätten“
Protéger la valeur universelle exceptionnelle, l'intégrité et l'authenticité des sites du patrimoine mondial

Was? / Quoi ?

„Auswirkungen des Klimawandels auf Gletscher in Weltnaturerbestätten zeigen den dringenden Handlungsbedarf, um den außergewöhnlichen universellen Wert der Gletscher zu schützen und sicherzustellen, dass sie der Menschheit Nutzen bringen“

Impacts du changement climatique sur les glaciers dans les sites du patrimoine mondial montrent l'urgence d'agir pour protéger la valeur universelle exceptionnelle des glaciers et garantir les avantages qu'ils procurent à l'humanité

Wie? / Comment ?

„Deutliche Reduzierung des Treibhausgasemissionen ist die wichtigste und dringendste Priorität für den Schutz der Gletscher“

Réduction profonde des émissions de gaz à effet de serre est la priorité la plus importante et la plus urgente pour la sauvegarde des glaciers

„Dringende, ehrgeizige und koordinierte Massnahmen zur Verbesserung von Wissen und Überwachung, sowie gezielte Anpassungspolitiken und –massnahmen durch integratives Engagement und Kommunikation“

Action urgente, ambitieuse et coordonnée pour améliorer les connaissances et le suivi, et des politiques et mesures d'adaptation cibles, grâce à un engagement et une communication inclusifs

Herausforderung? / Défi ?

„Mangel an nachhaltiger Finanzierung gehört zu den am weitesten verbreiteten Problemen“
manque de financement durable est l'un des problèmes les plus courants

Was können wir (jede:r einzelne) tun?

Que pouvons-nous (chacun·e) faire?

Emission der Treibhausgase deutlich senken

Réduire considérablement les émissions de gaz à effet det serre

Individuelle Maßnahmen: Mesures individuelles

- Reisen/Transport Voyage/transport
- Haushalt Ménage
- Konsumverhalten Comportement du consommateur

→ Verzögerung der Erderwärmung

Retard du réchauffement climatique

Die Politik kann die Klimakrise stoppen
La politique peut arrêter la crise climatique

