



2025
International
Year of Glaciers'
Preservation

Glaciers

**From icons of climate change to memorials
of our success in limiting global warming**

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World Glacier Monitoring Service

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wgms

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The International Year of Glaciers' Preservation 2025



WGMS: implementation partner for glacier monitoring

How many glaciers do we have?

How fast are glaciers melting?

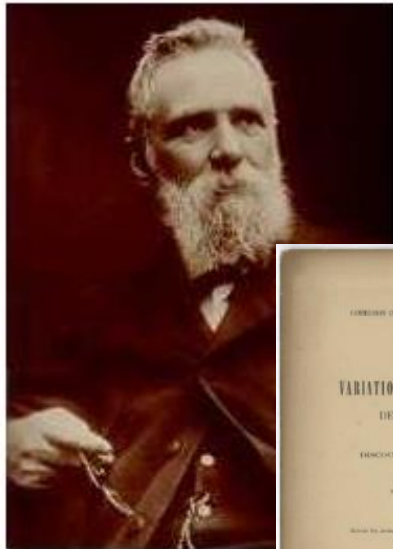
Why does glacier melting matter?

Can we still preserve our glaciers?

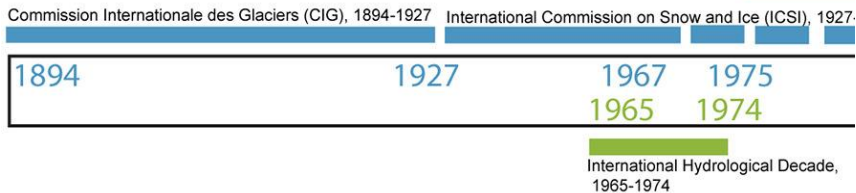
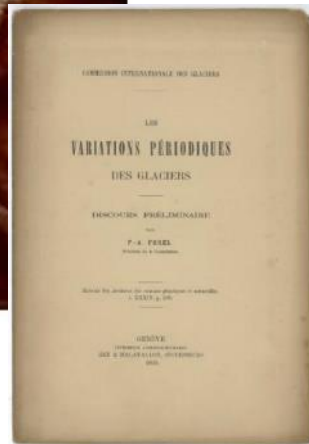
- Adopted by UN General Assembly
- Co-facilitated by UNESCO and WMO
- Implemented by international organisations and programmes, universities, associations, and NGOs
- World Day for Glaciers: 21 March
- UN Decade of Action for Cryospheric Sciences 2025–34

Glacier observations

From the very beginning...



François-Alphonse Forel



...to a worldwide scientific collaboration network



GTN-G, 1998 onwards

- 130 years of internationally coordinated glacier monitoring
- compilation and dissemination of standardized data about glacier distribution and glacier changes
- GTN-G as an organizational framework for the glacier data centres and services

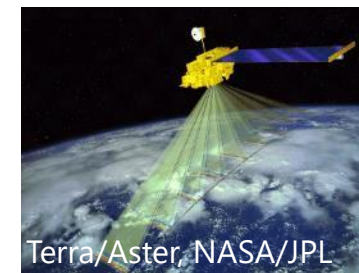
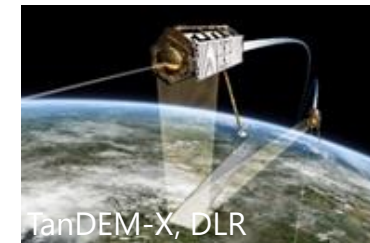
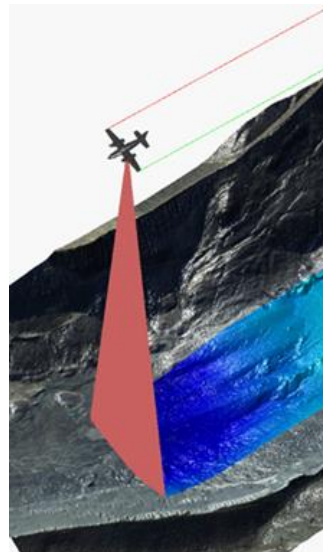
1894

Allison *et al.* 2019, Gärtner-Roer *et al.* 2022

World Data System (WDS/ISC),
today
Core Trust Seal (CTS),
2017 onwards

Global Terrestrial Network for Glaciers (GTN-G): Objectives

- 1) combining *in situ* observations with remotely sensed data
- 2) combining process understanding with global coverage
- 3) combining traditional measurements with new technologies by using an integrated and multi-level strategy



Data citation

When using these data, please cite as WGMS (2023, updated, and earlier reports) and/or the original investigators and sponsoring agencies according to the available meta-information:

WGMS 2023. Global Glacier Change Bulletin No. 5 (2020–2021). Zemp, M., Gärtner-Roer, I., Nussbaumer, S.U., Welty, E.Z., Dussaillant, I., and Bannwart, J. (eds.), ISC(WDS)/IUGG(IACS)/ UNEP/UNESCO/WMO, World Glacier Monitoring Service, Zurich, Switzerland, 134 pp., based on database version: doi:10.5904/wgms-fog-2024-01.



DOI for current scientific data (Identifier): 10.5904/wgms-fog-2024-01

Title: Fluctuations of Glaciers Database

Publisher: World Glacier Monitoring Service (WGMS)

Release date: 2024-01-23

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Citation: WGMS (2024): Fluctuations of Glaciers Database. World Glacier Monitoring Service (WGMS), Zurich, Switzerland.

<https://doi.org/10.5904/wgms-fog-2024-01>

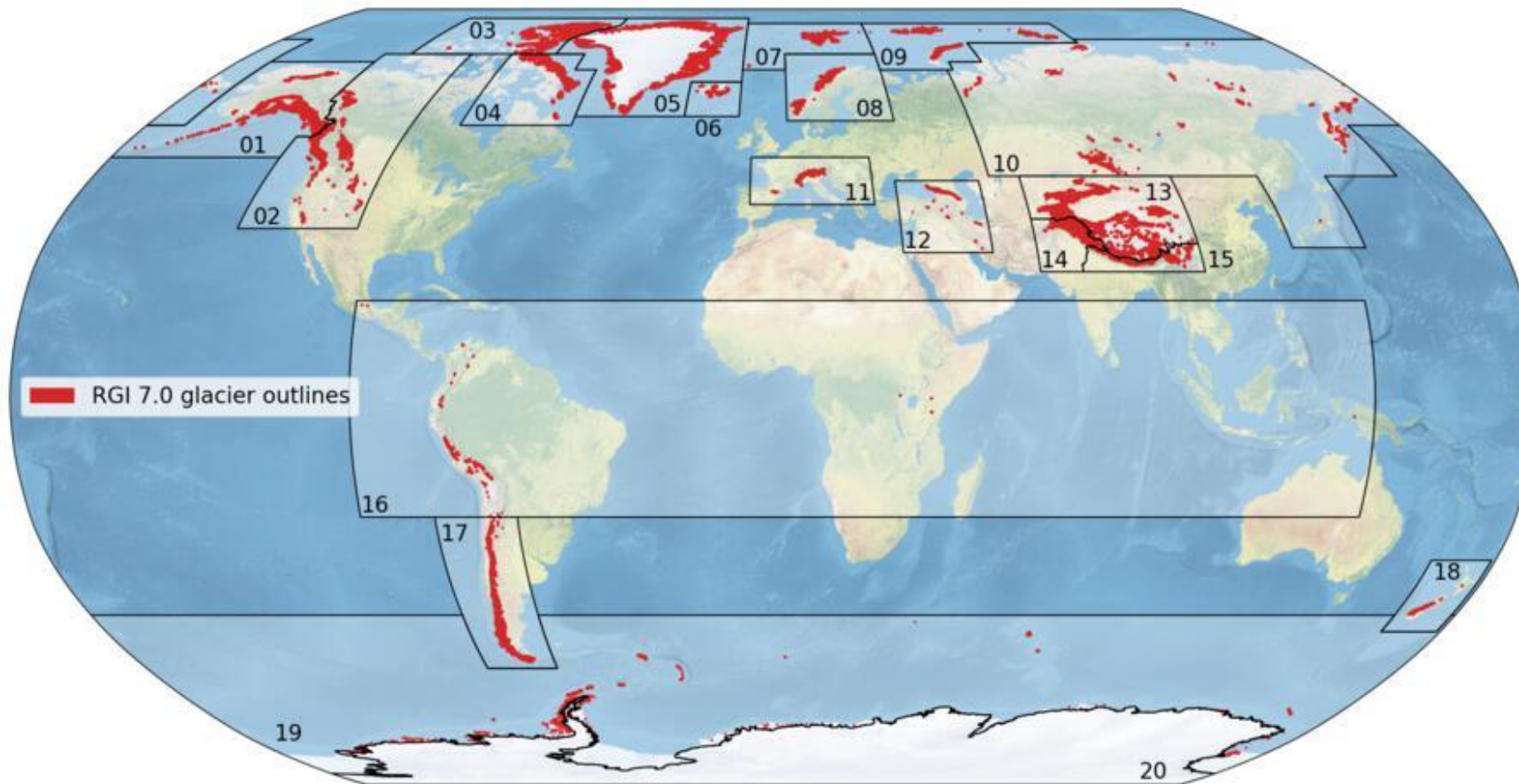


https://wgms.ch/data_policy/

Follows the FAIR Principles (Findability, Accessibility, Interoperability, and Reusability) for data stewardship

How many glaciers do we have?

Glacier distribution in 2000



275,000 glaciers*
700,000 km²

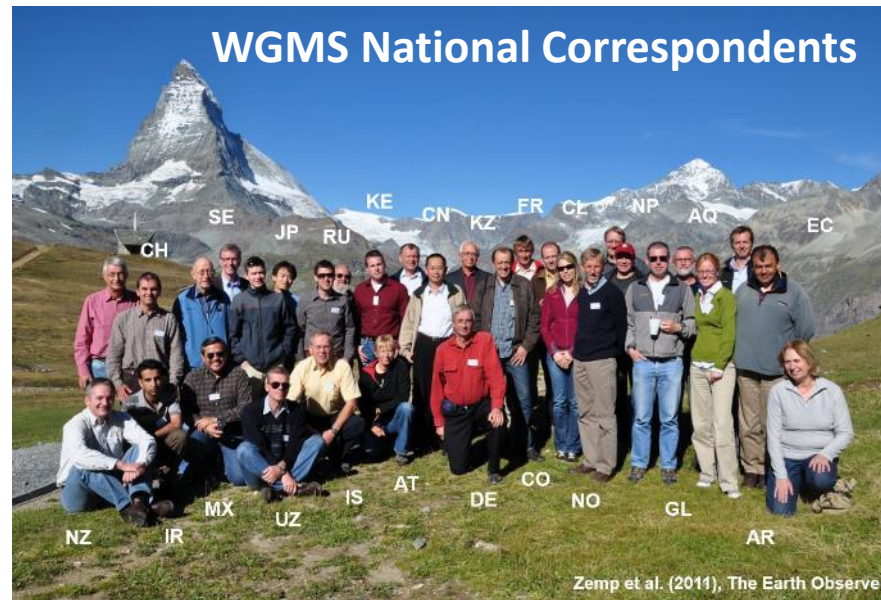
***distinct from Greenland and
Antarctic ice sheets**



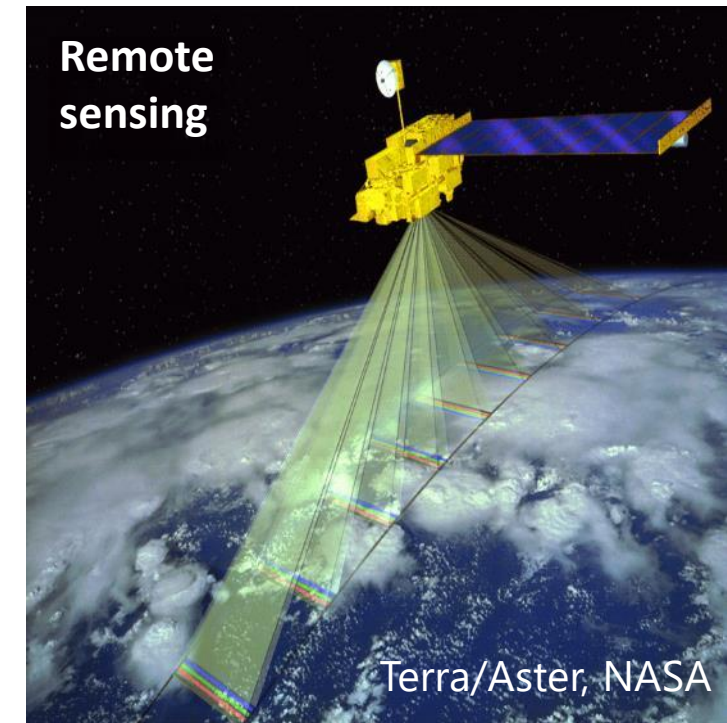
How fast are glaciers melting?



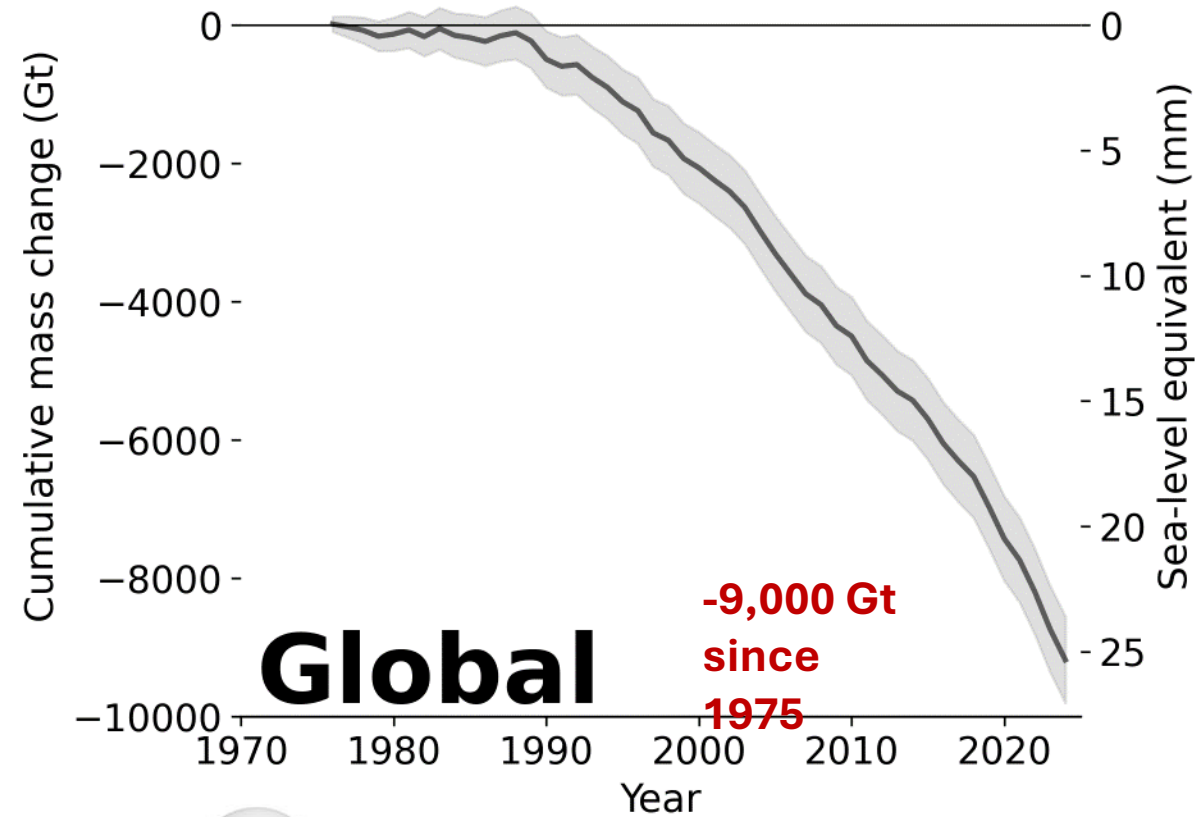
Aletsch glacier, M. Zemp



Fluctuations of Glaciers database



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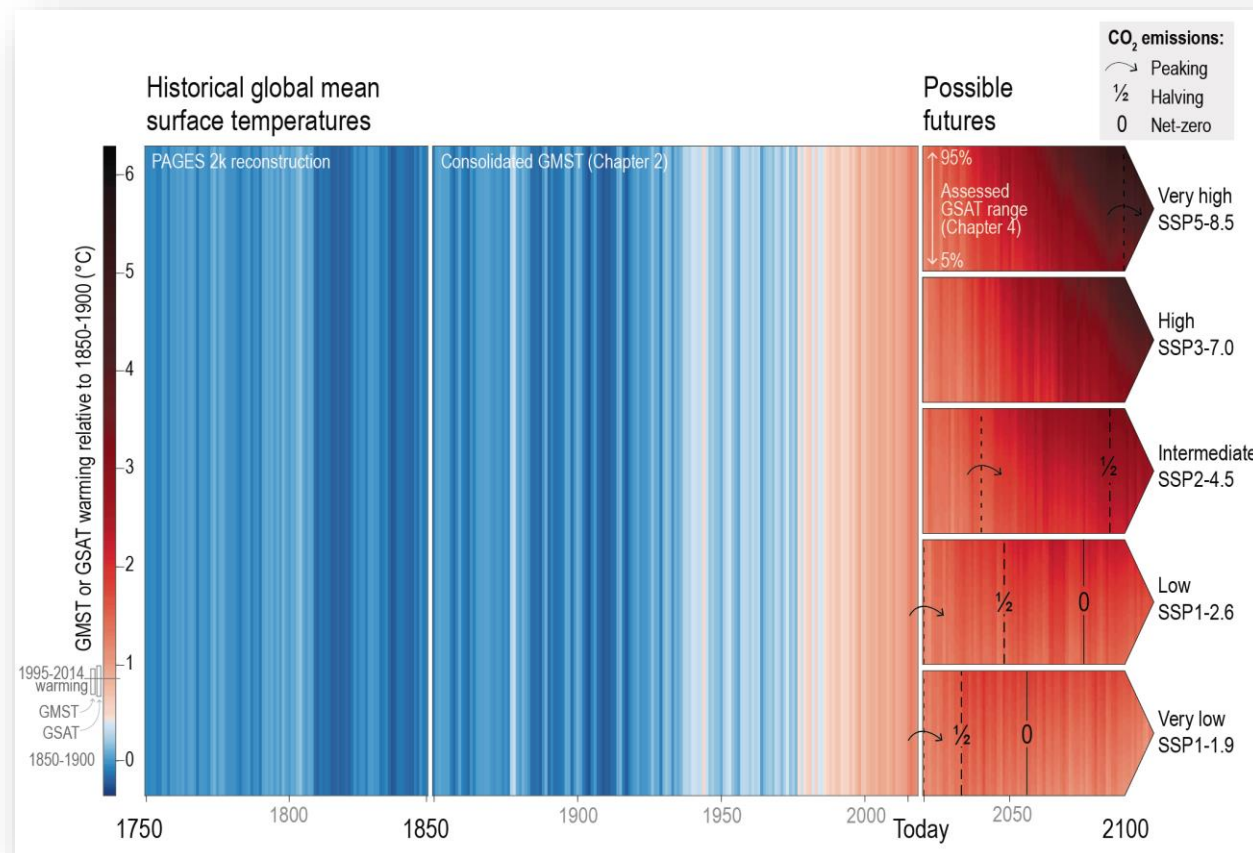
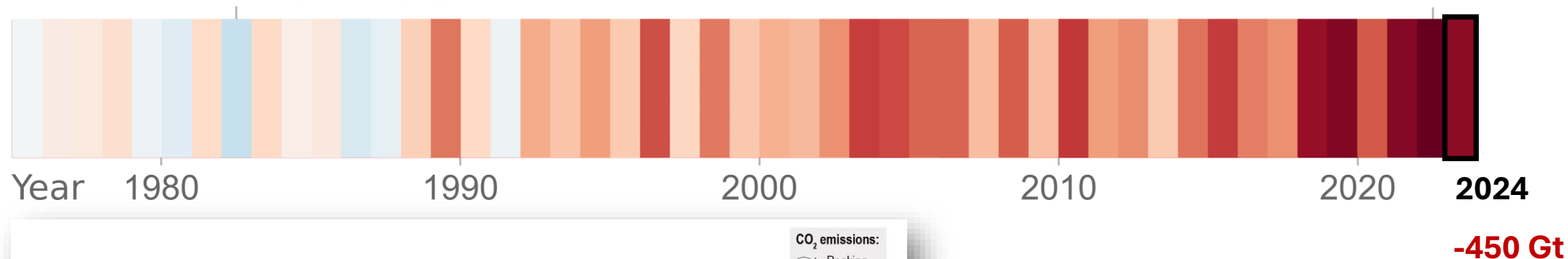


Dussailant *et al.* (2025)



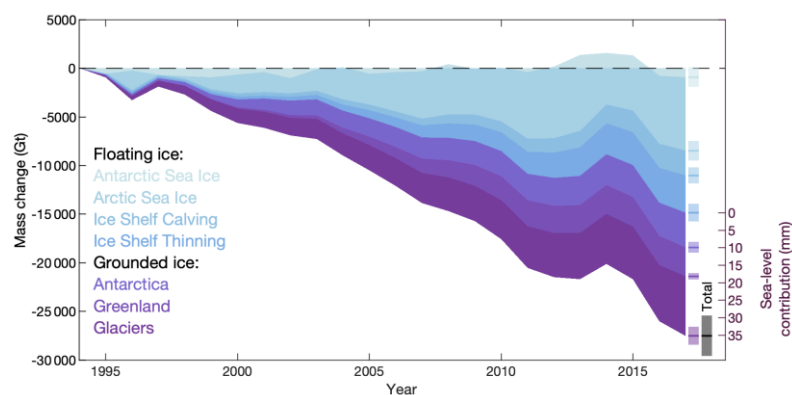


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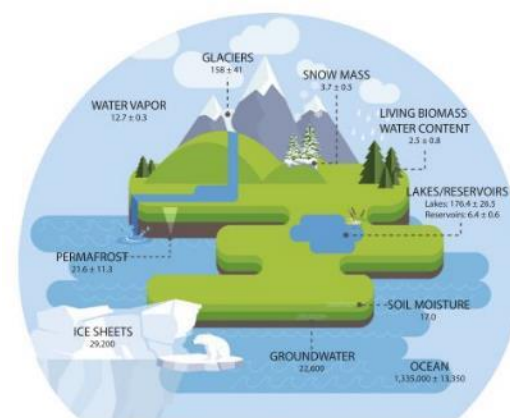
Why does glacier melting matter?

Global sea-level rise



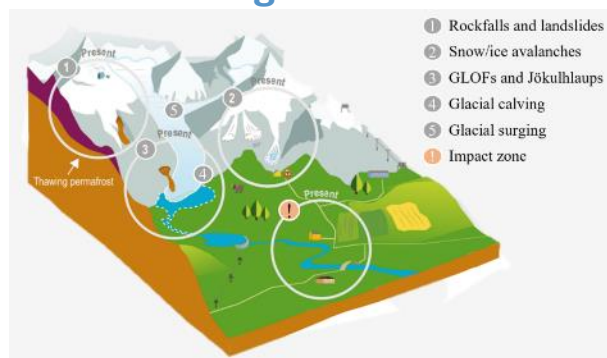
Slater *et al.* (2021)

Global and regional water storage



Dorigo *et al.* (2021)

Local geo-hazards



IPCC SROCC (2019)



Loma Larga, S. Nussbaumer

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