

A GLOBE Seasons and Biomes and GLOBE Africa



**WELCOME to the 2012 Mt Kilimanjaro Expedition
Webinar 1**

September 26, 2012

**with permafrost and hydrologist scientist
Dr. Kenji Yoshikawa**



This webinar is hosted by the Arctic Research Consortium of the United States

Slides will be shown here

Exit the presentation

Click to Talk, Unclick to finish talking

Raise your hand to ask a question

Share with emoticons

List of all participants

Chat with one person or the entire group

The screenshot shows the Blackboard Collaborate interface. The main window displays a presentation slide titled "Welcome to Blackboard Collaborate" with the ARCUS logo and the text "Arctic Research Consortium of the United States". The left sidebar contains several panels: "AUDIO & VIDEO" with a "Talk" button and a "Video" button; "PARTICIPANTS" with a list of participants including Sarah Crowley and Arctic Research Consortium of the US; "MAIN ROOM" with a list of participants; and "CHAT" with a list of messages. A "Recording" indicator is visible in the top right corner of the main window.

Please Note:

- Participants using the telephone can mute/unmute by **pressing *6** on the phone.
- Today's event will be recorded and archived.

Participant Introductions

In the CHAT box, write in your:

- ✓ Name
- ✓ School / Institution
- ✓ The number of students and adults participating with you in the same location

Questions

During the Presentation:

- Type your question in the text chat box

At the End of the Presentation:

- Raise your hand with the “hand button”.
- ARCUS staff will call on you.
- Speak loud and clear and directly into the phone to ask your question.

Click on the Talk button to speak.

Unclick when you are done.



Mt. Kilimanjaro is here in Tanzania, Africa !



Dr. Kenji Yoshikawa lives in Fairbanks, Alaska, United States



The GLOBE Program



Students collaborate with scientists



Hands-on science



Atmosphere/Climate, Hydrology, Soil, Land Cover/Biology, Phenology and 4 NEW NSF Earth System Science Projects



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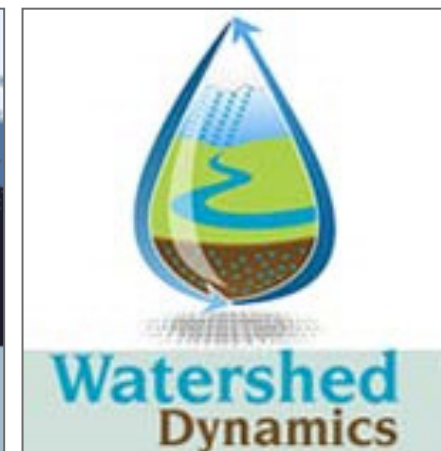
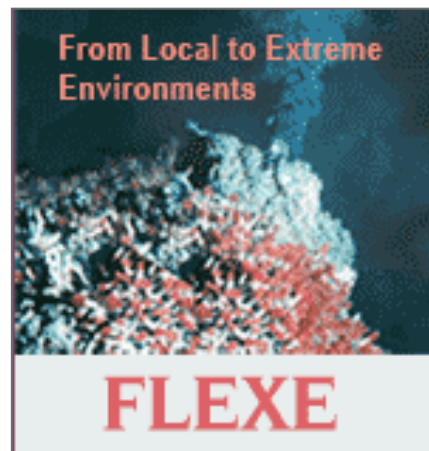
International Program in 112 countries



Over 21 million environmental measurements reported

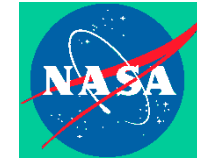


Science Projects at GLOBE





The **GLOBE** Program



Seasons and Biomes



Dr. Elena Sparrow¹, Dr. Rebecca Boger², Dr. Leslie Gordon³, Ms. Kim Morris¹, Dr. David Verbyla¹, Dr. Elissa Levine⁴, Ms. Martha Kopplin¹, and Dr. Sheila Yule⁵

¹ University of Alaska Fairbanks, Fairbanks, Alaska

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Dr. Jessica Robin, Dr. Martin Jeffries

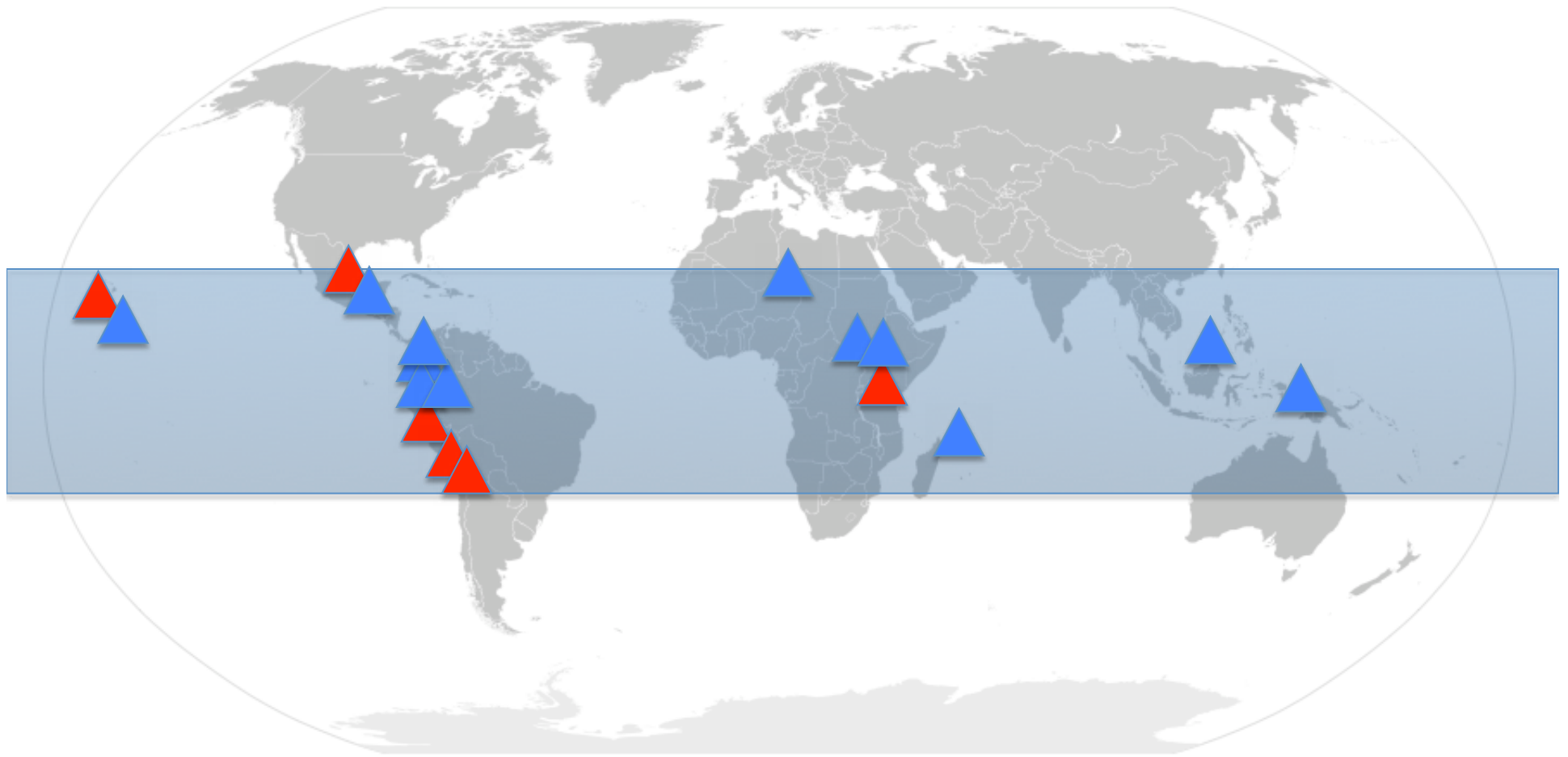


GLOBE AFRICA led by Mark Brettenny

TROPICAL MOUNTAIN PERMAFROST



Kenji Yoshikawa
University of Alaska



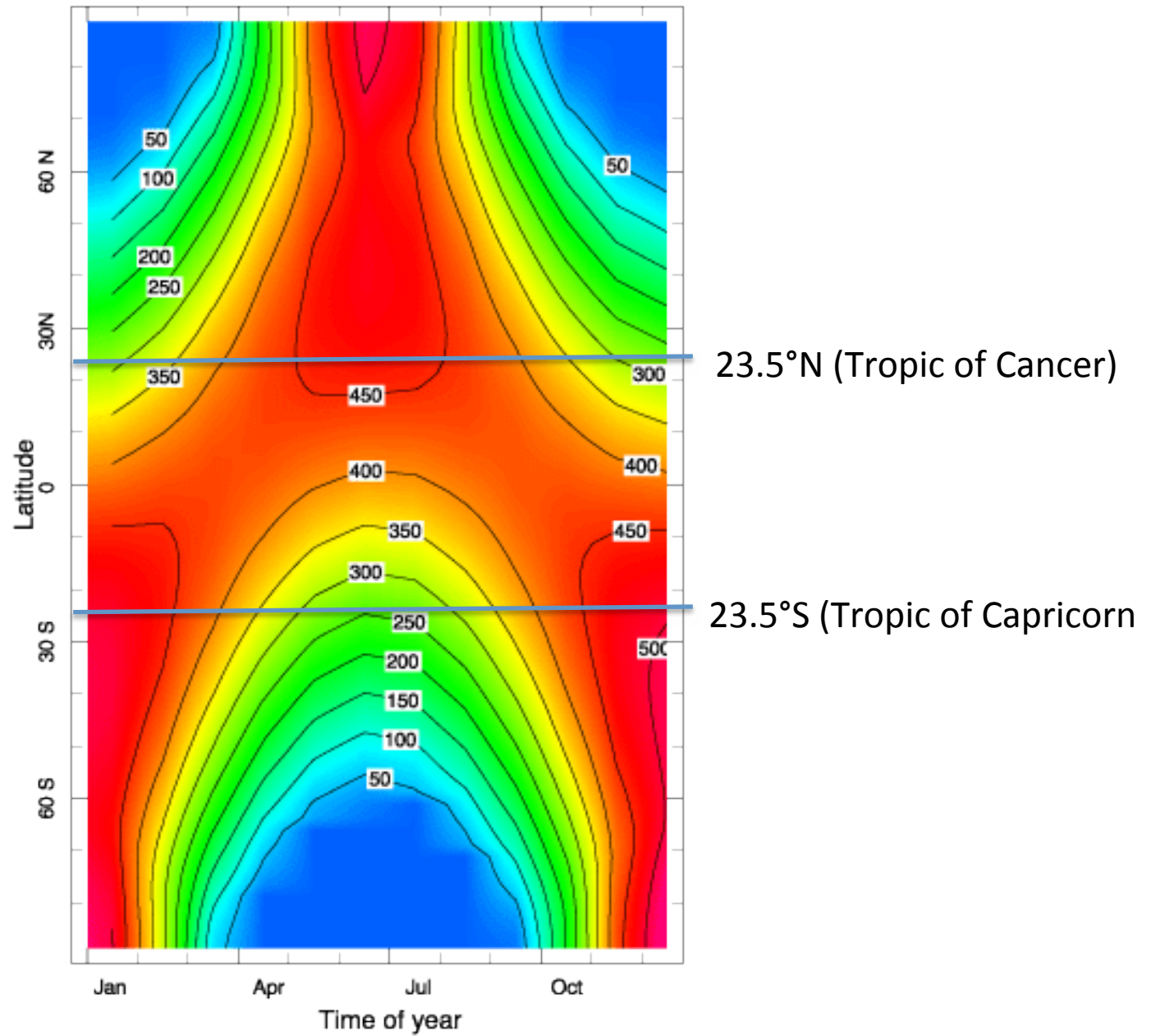
Mountains unlikely permafrost



Mountains presence of permafrost

Tropical mountain permafrost between 23.5°N (Tropic of Cancer) and 23.5°S (Tropic of Capricorn).

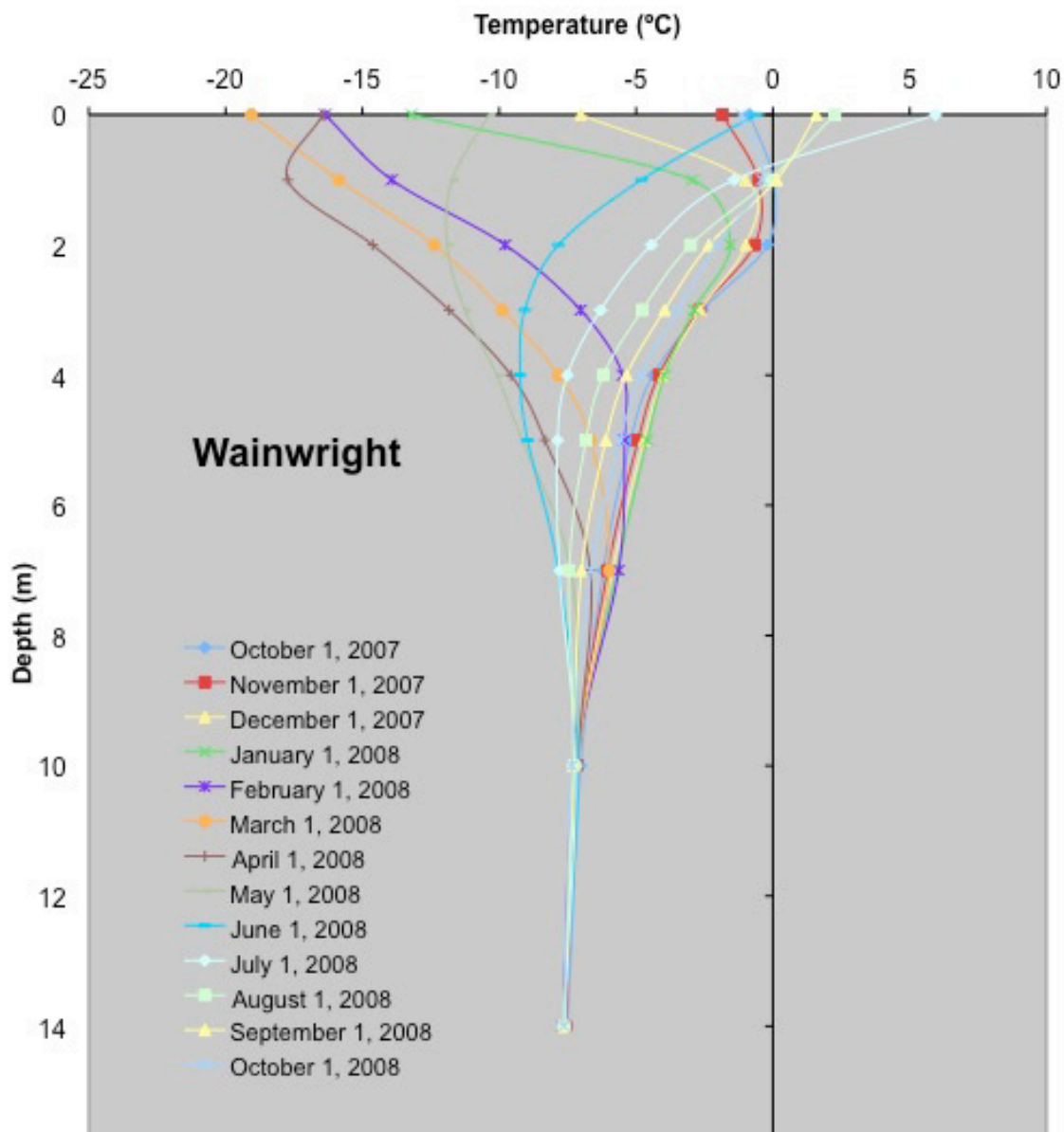
Latitude-Time Distribution of Incoming Solar Radiation at the Top of the Atmosphere



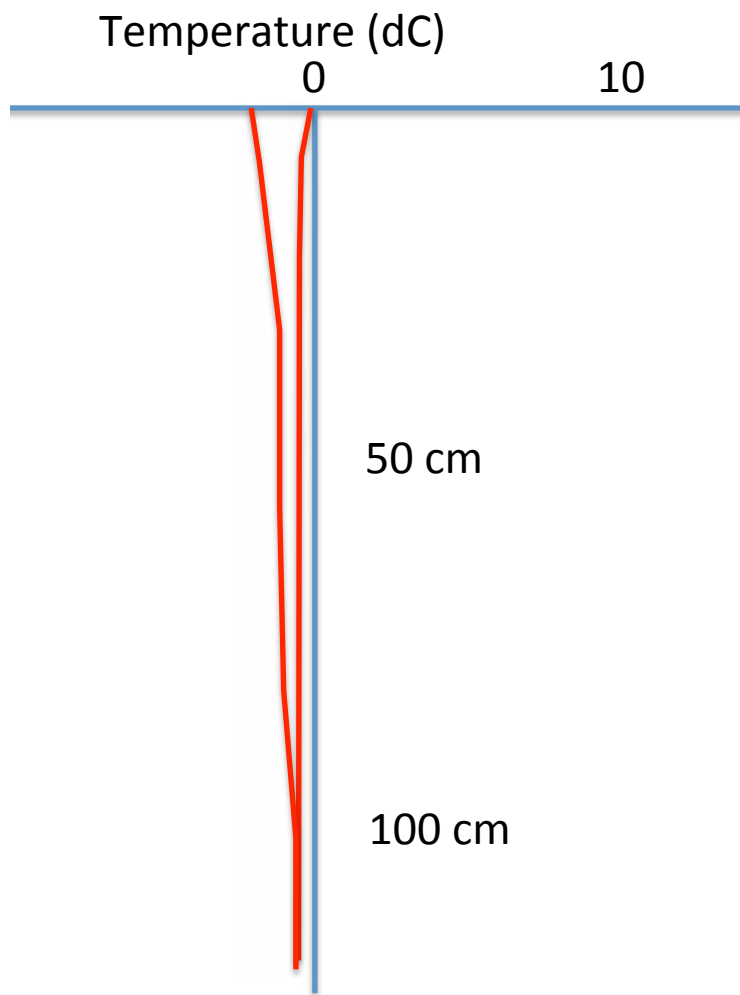
Based on ERBE data. Units are W/m^2

Seasonal fluctuation

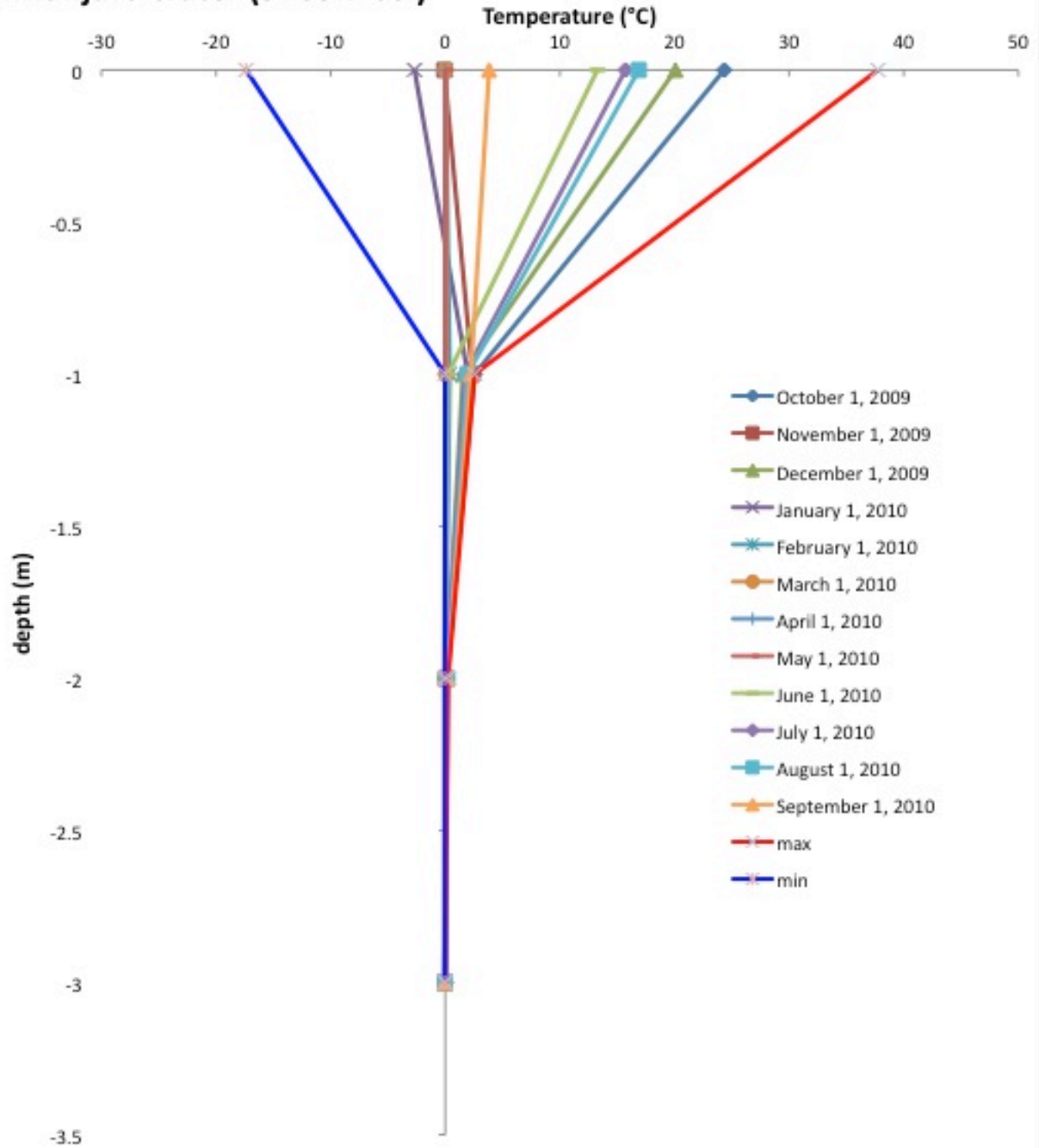
70 degree N



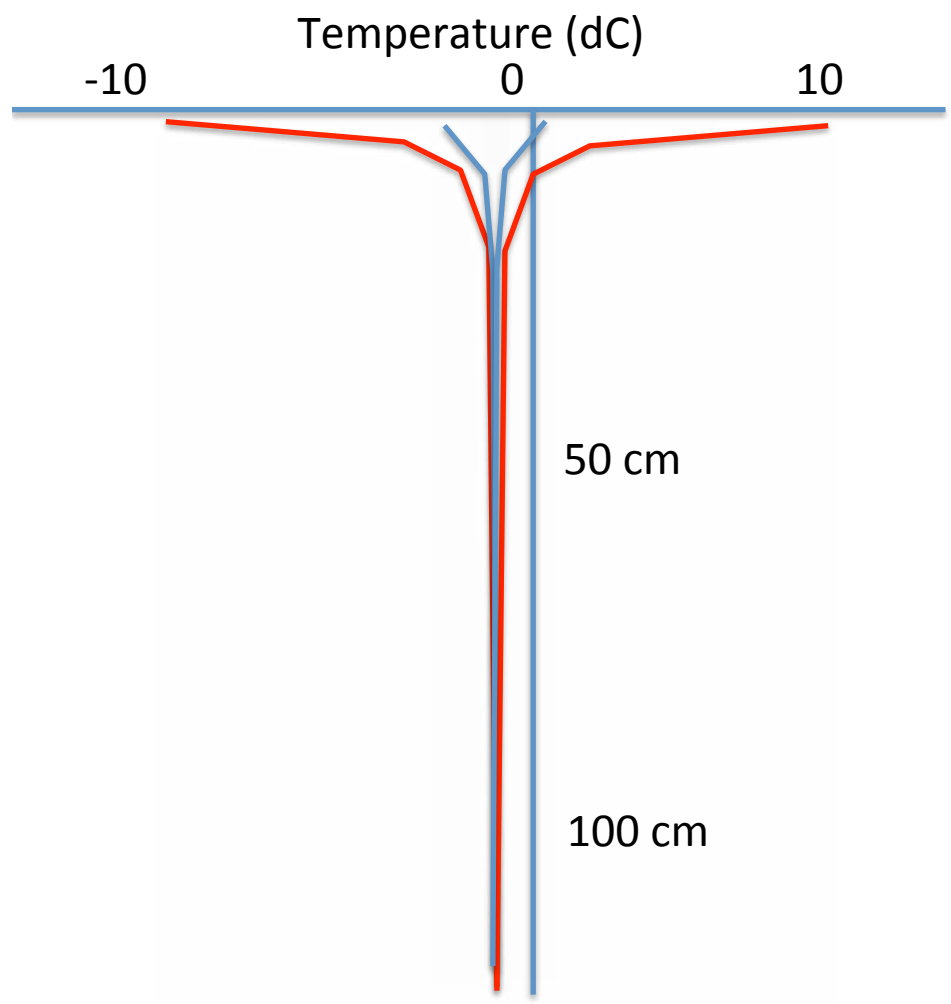
Equator



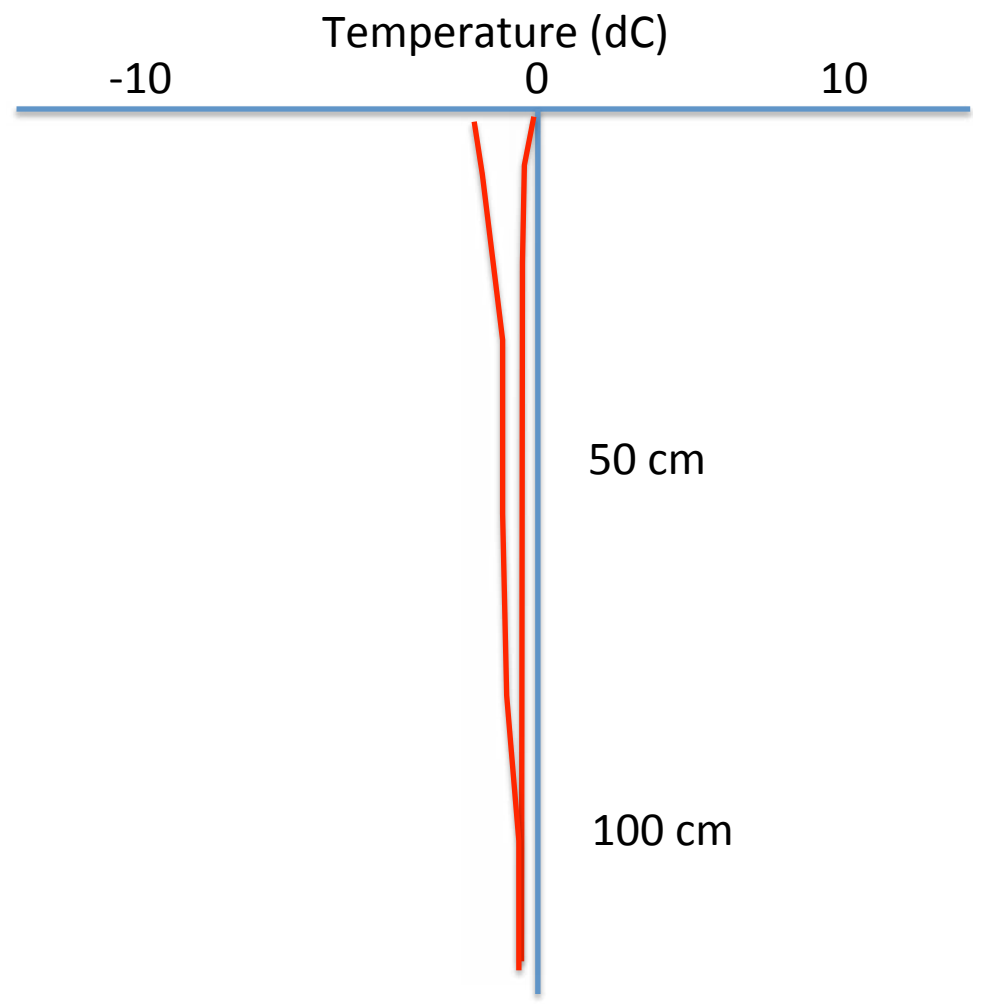
Kilimanjaro crater (5785m asl)



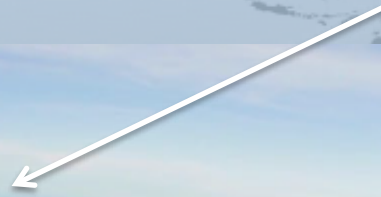
Daily fluctuation

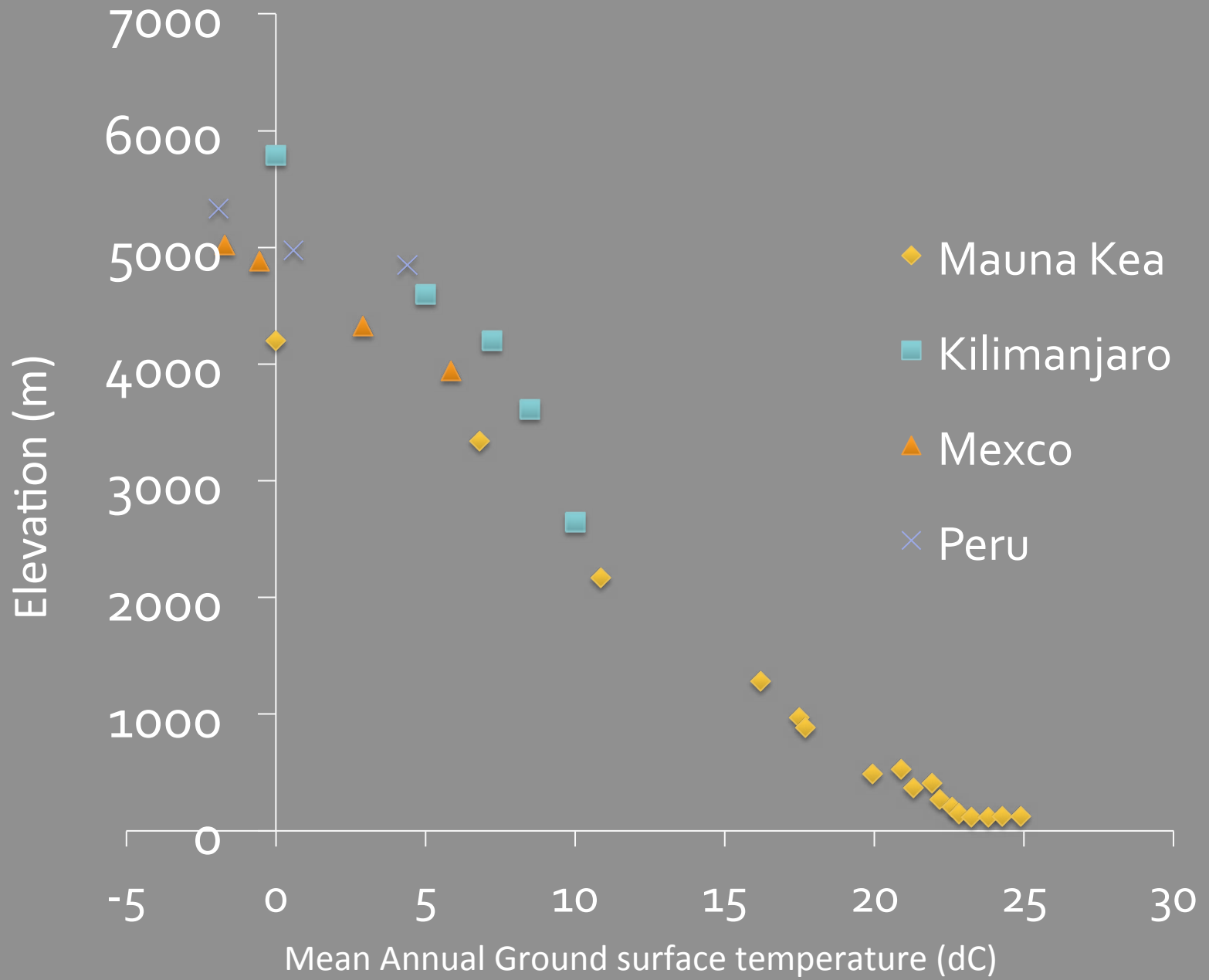


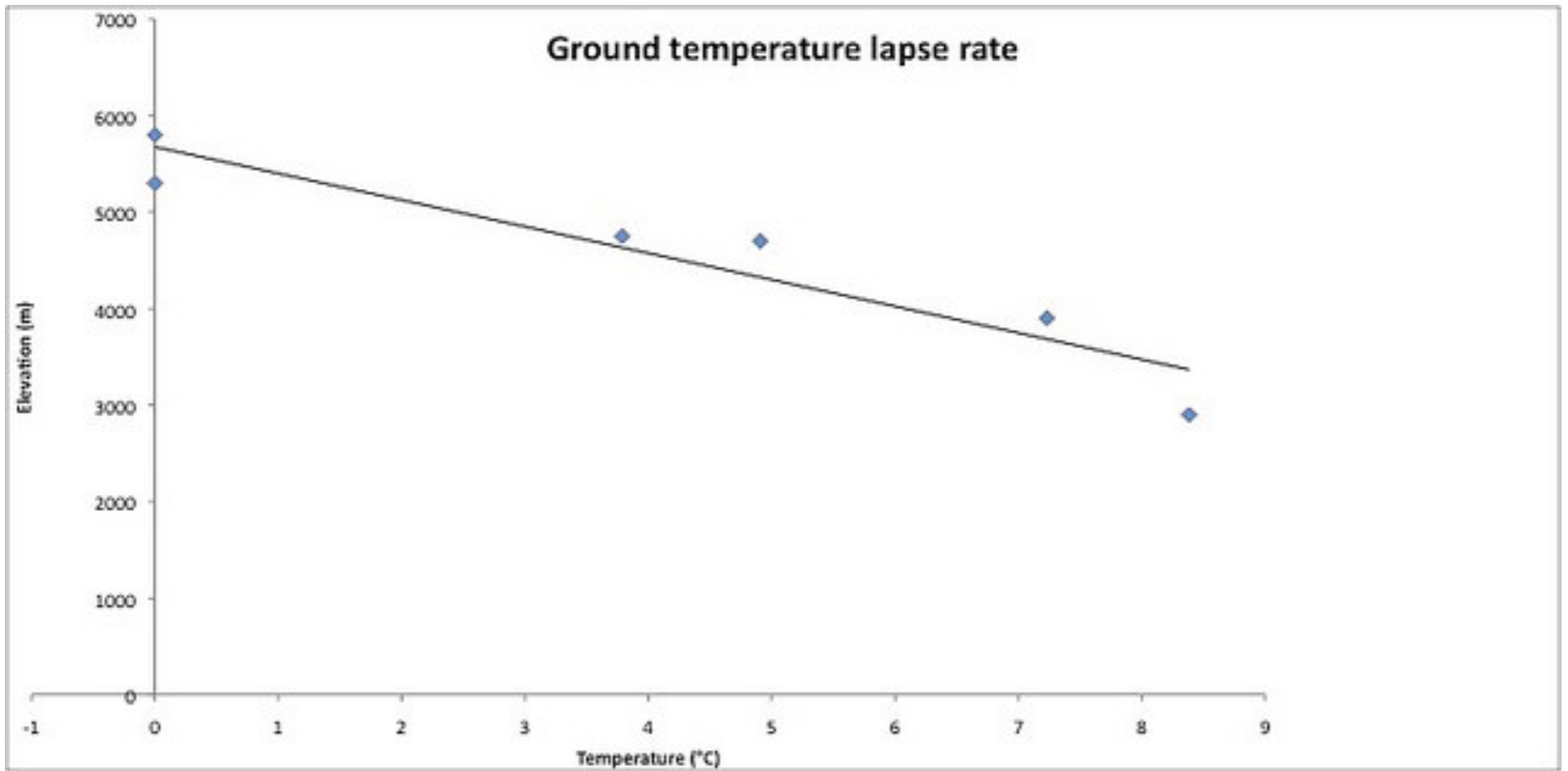
Seasonal fluctuation





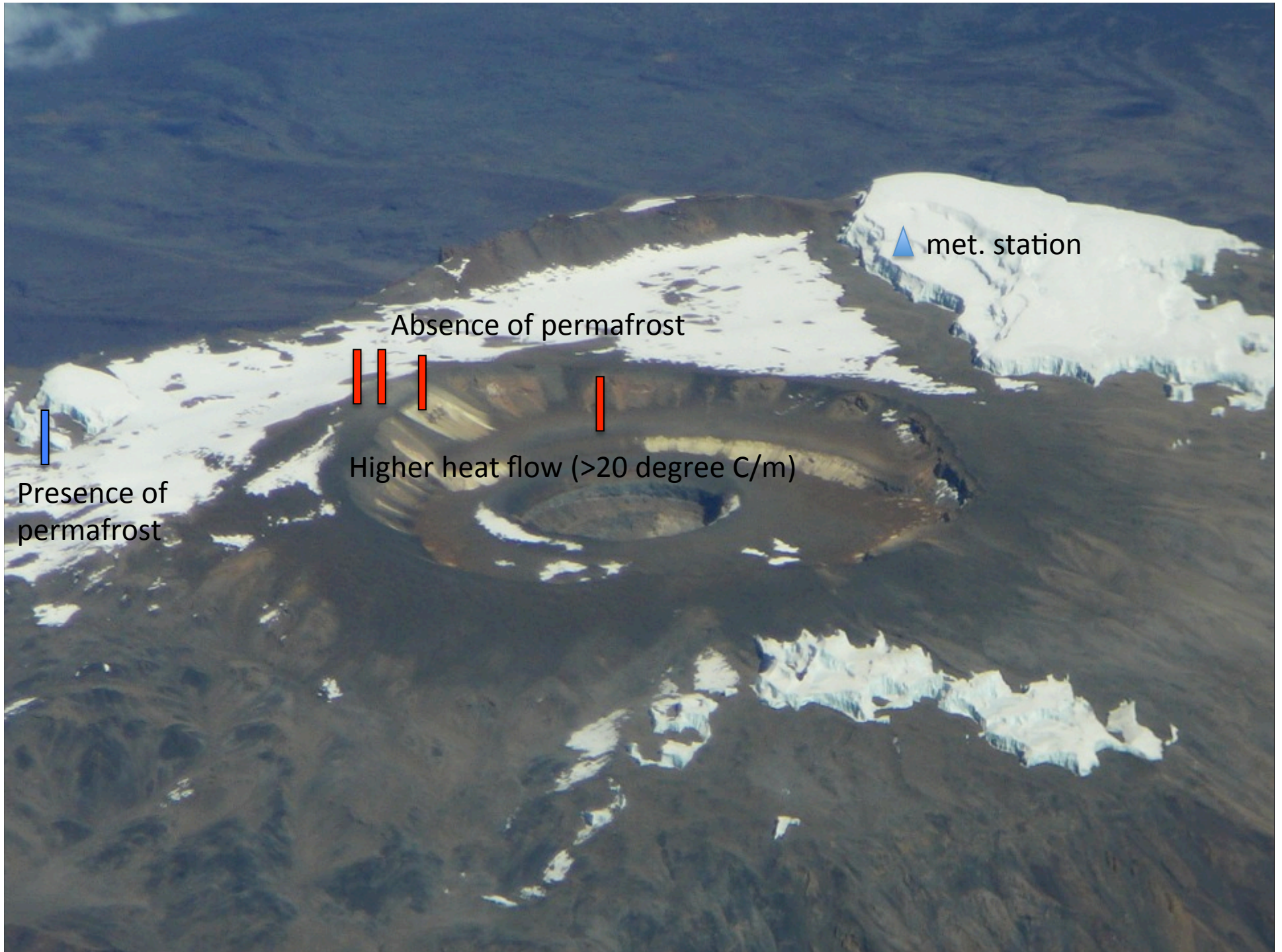






Mount Kilimanjaro 3 degree South





▲ met. station

Absence of permafrost

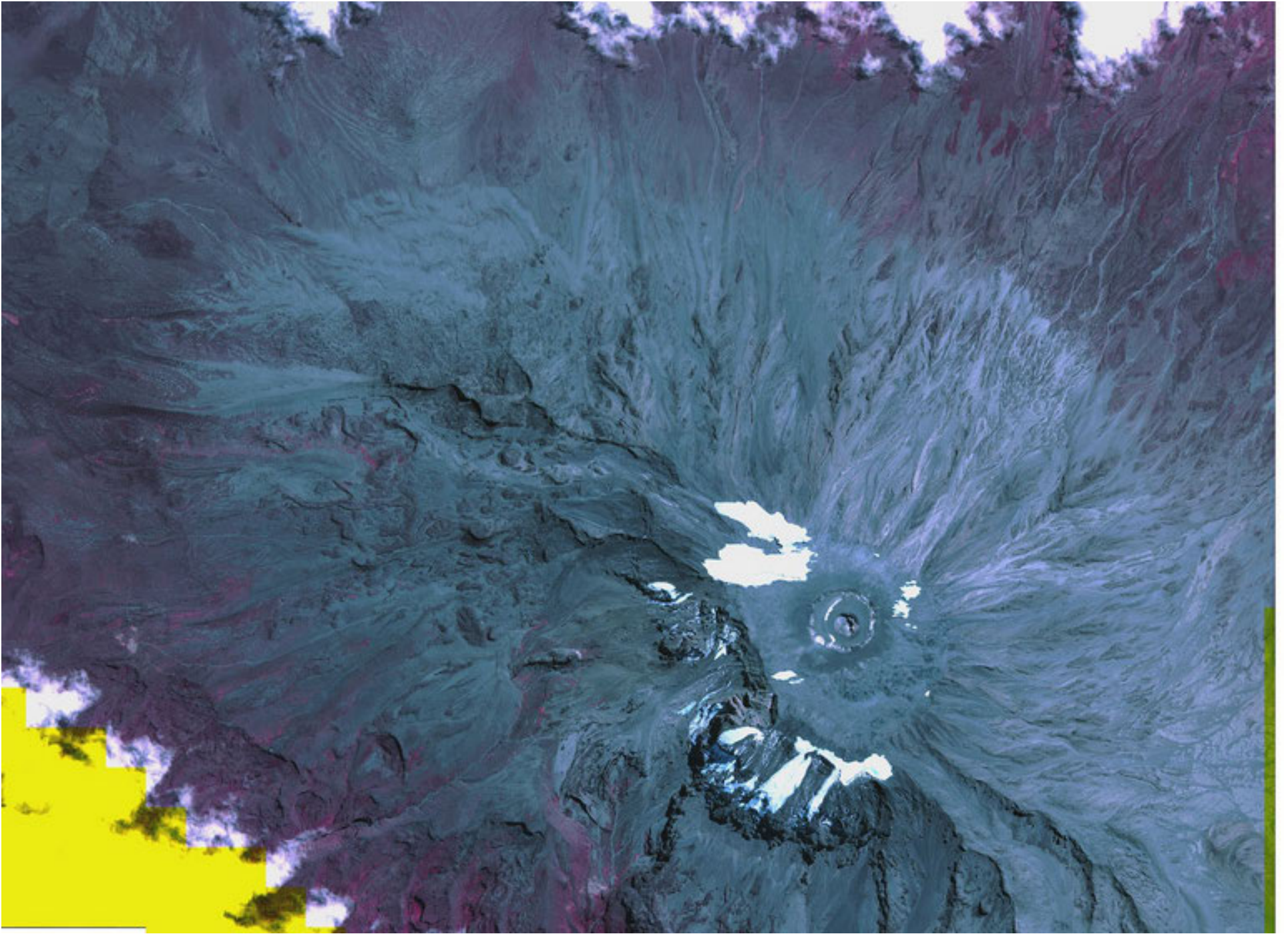


Higher heat flow (>20 degree C/m)



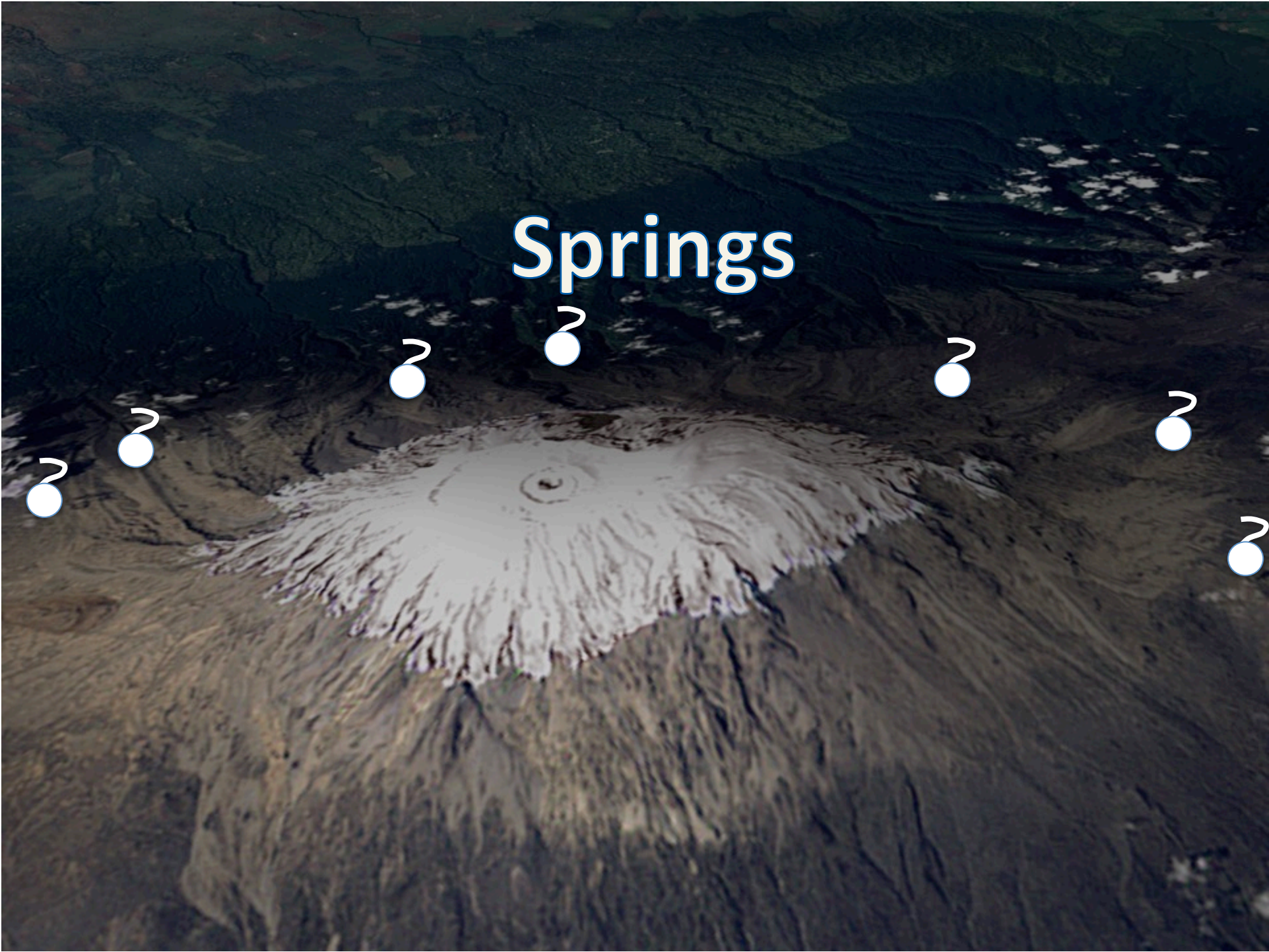
Presence of permafrost







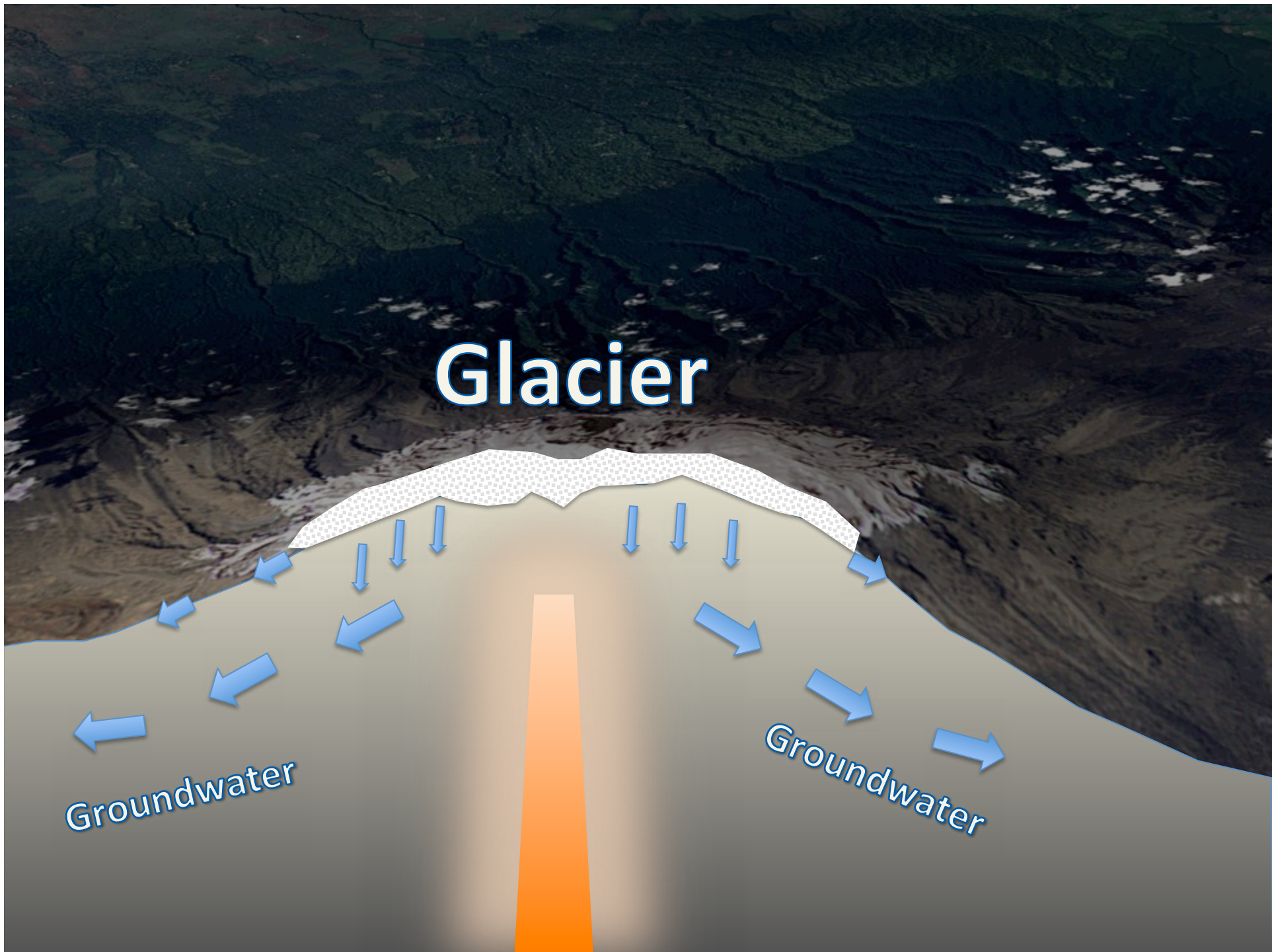
Springs



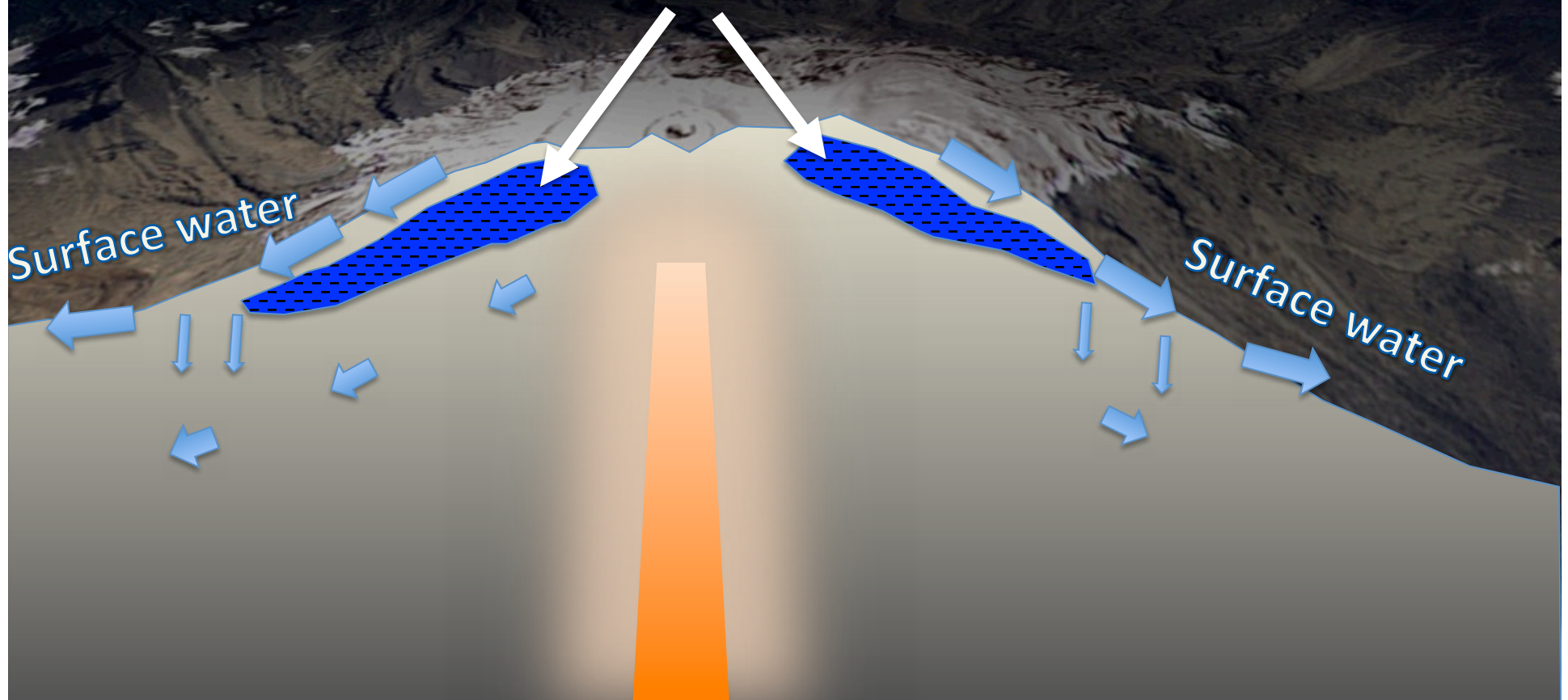
Glacier

Groundwater

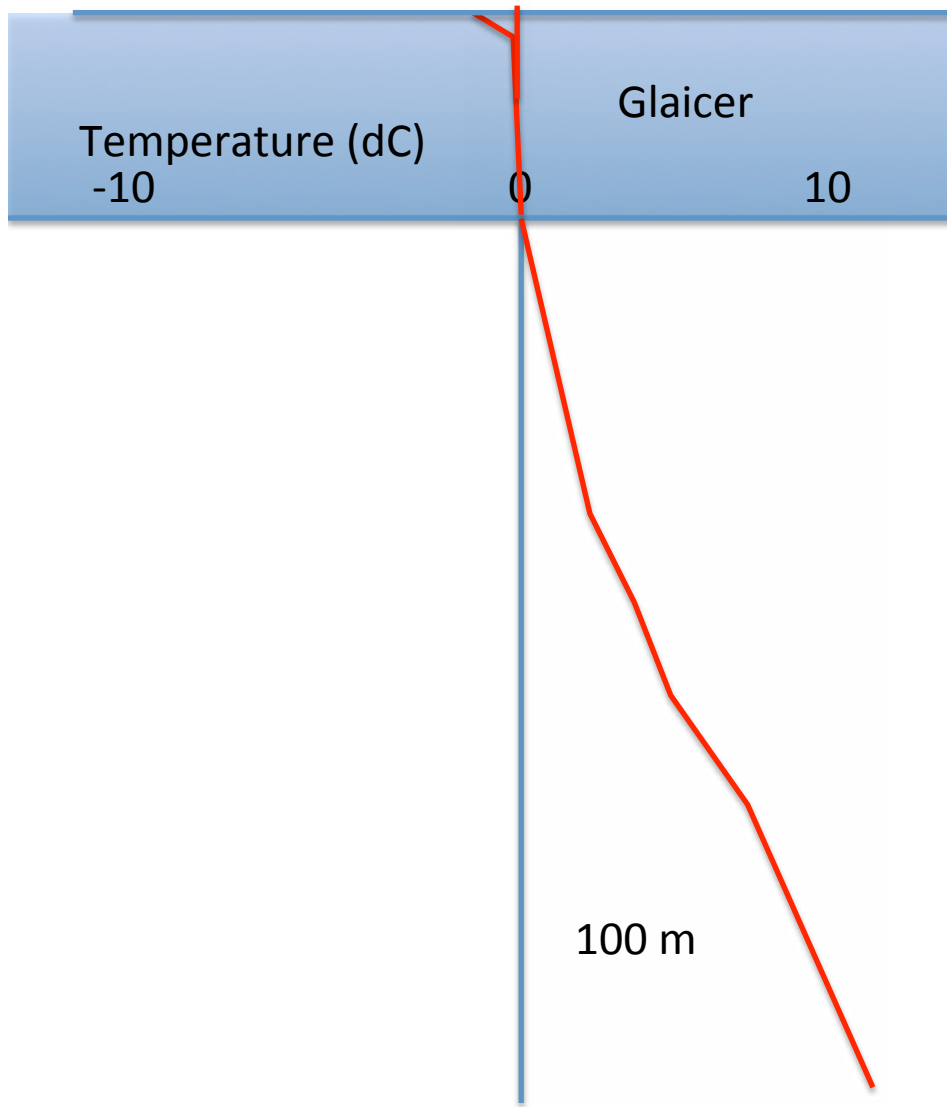
Groundwater



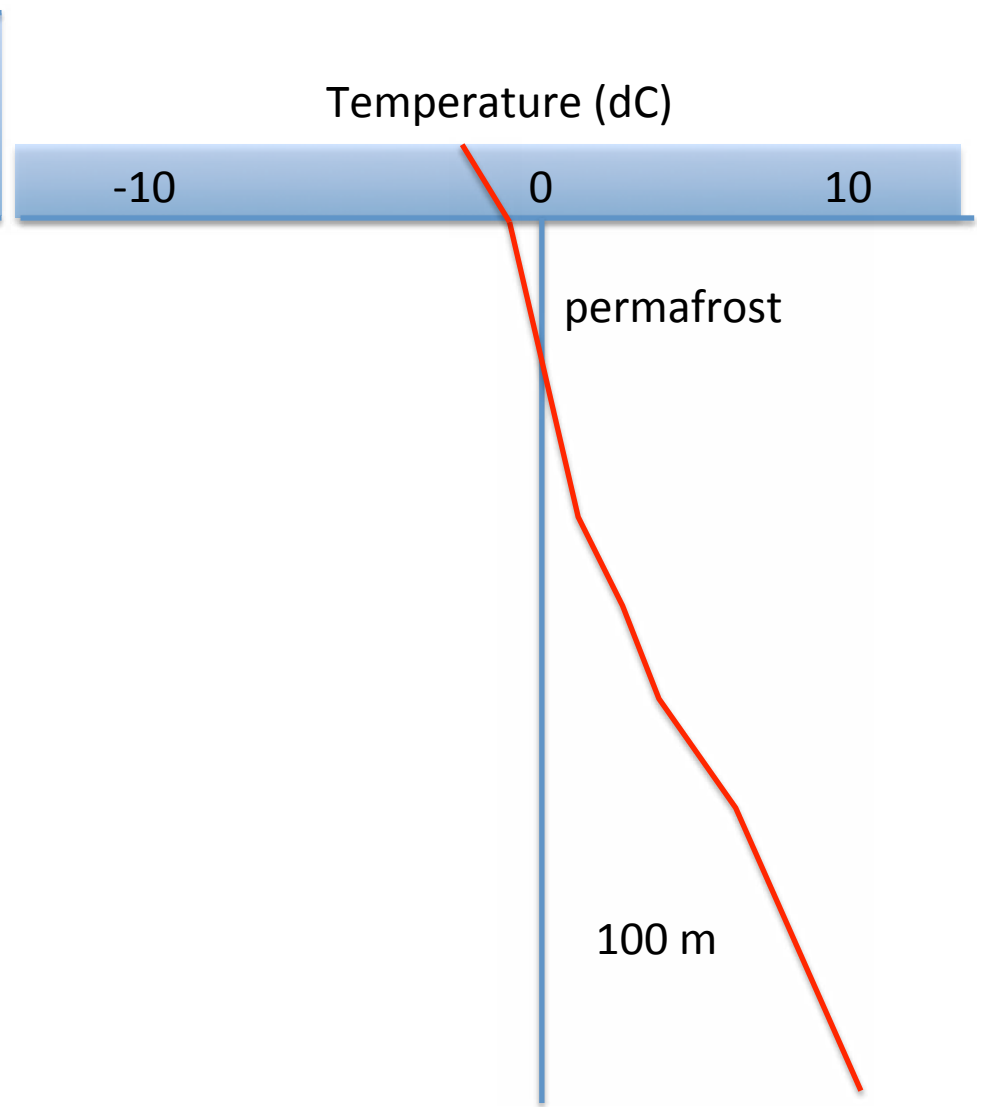
Permafrost (= impermeable layer)



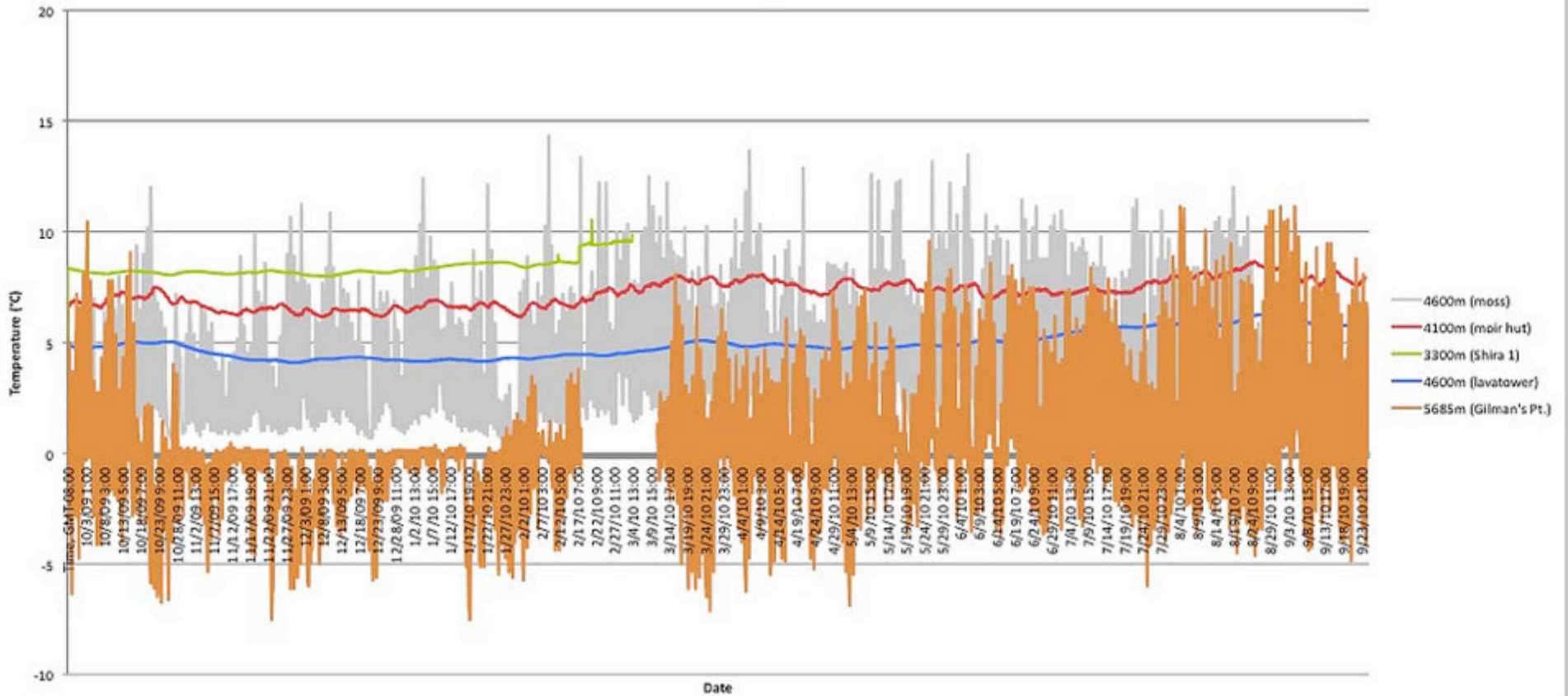
During glaciation



Retreating glacier

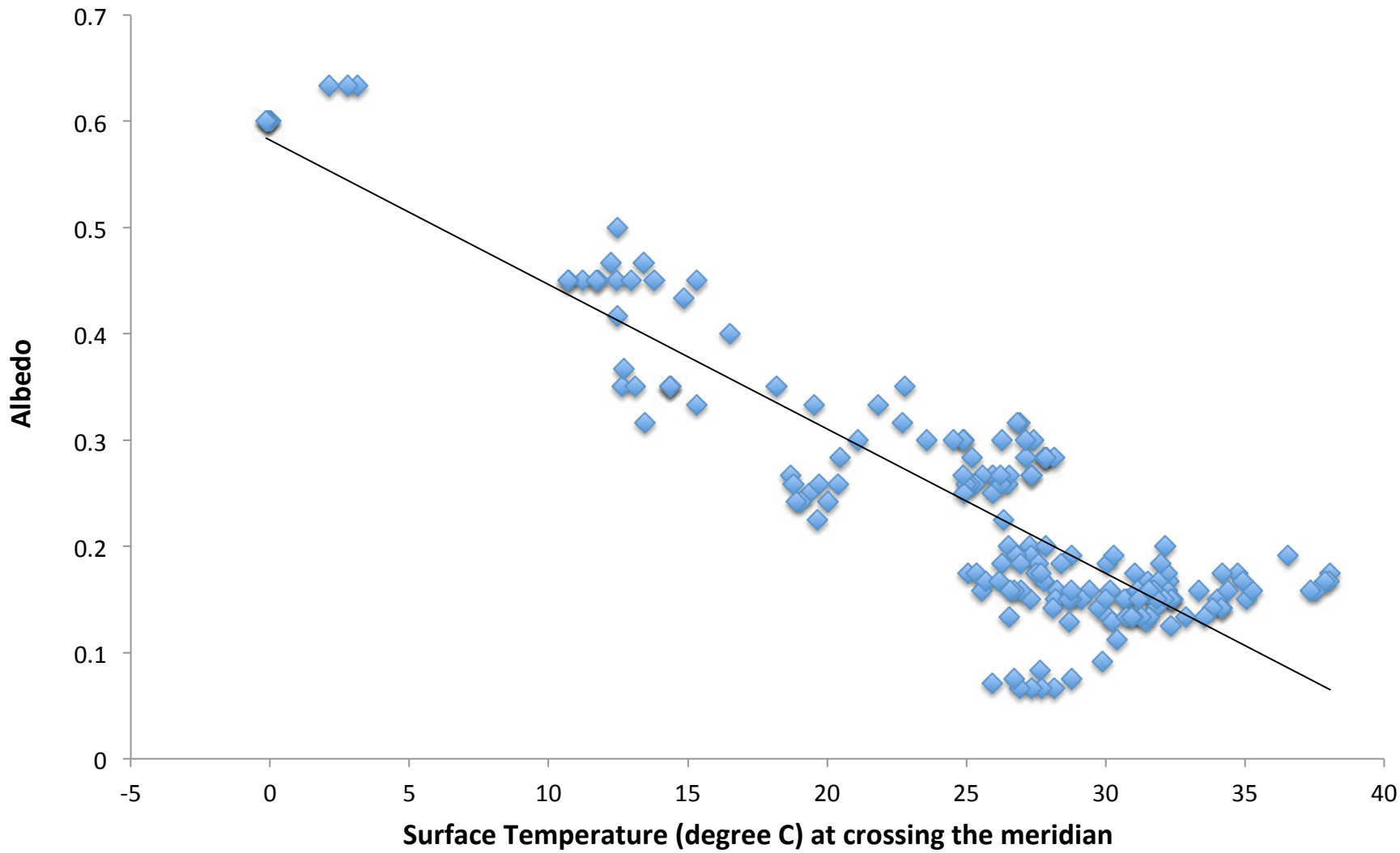


Ground temperature (°C)



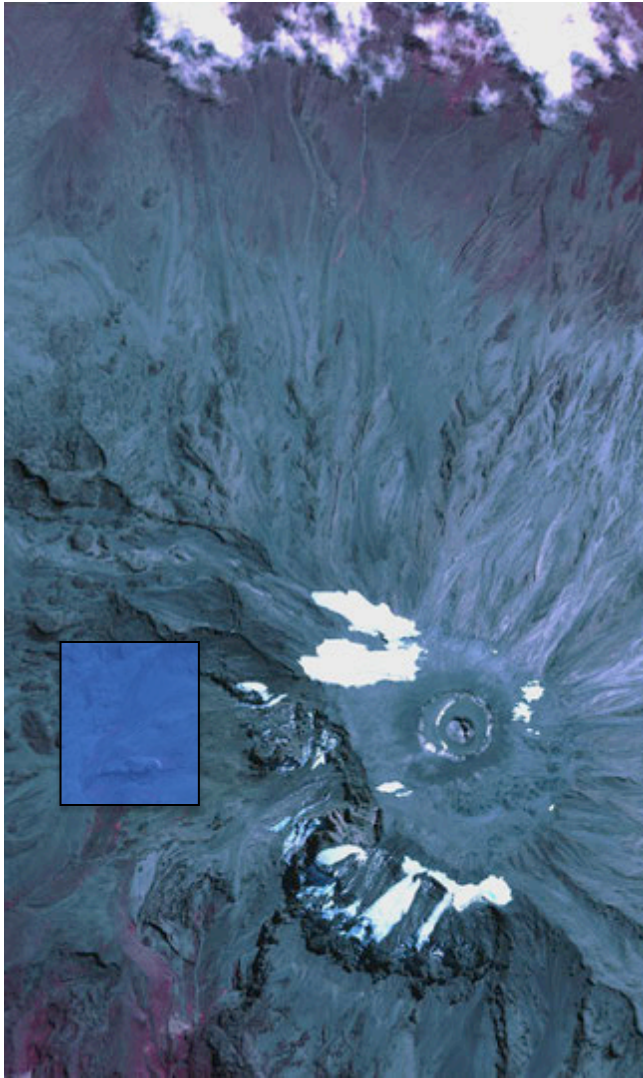
Nevado Chachani, Peru 16 degree South















NOTE AT KILIMANJARO

- HIGH GEOTHERMAL FLOW
- HIGH SOLAR RADIATION
- ALBEDO HELPS STAYING COOL
- SNOW/ THIN GLACIER COVER STAYING NEGATIVE TEMPERATURE
- NO THERMAL OFFSET

Summaries

- Common characteristics for these regions: high mountains are likely volcano, it means...
- Crater – ideal to storage cold air mass
- Tephra- ideal low thermal conductive materials, higher albedo
- Glacier/snow- protect strong solar radiation
- Glacier that retreating- ground temperature adjusted by air temperature
- Colder the LIA- initiated ice bonded permafrost during the LIA
- But higher geothermal flow...

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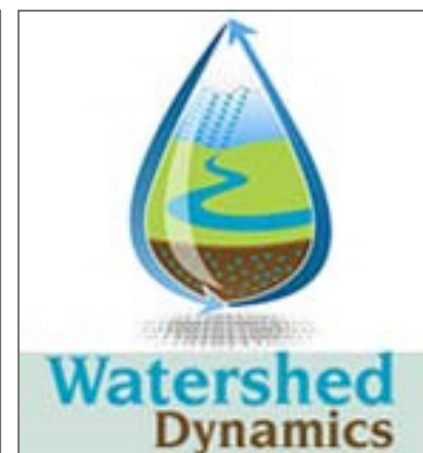
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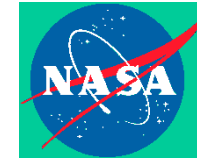


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Webinar 2

There will be a second event from Mt.
Kilimanjaro on October 1, 2012!

Check www.polartrec.com for the details!

Thank You!

*This event was hosted by the
Arctic Research Consortium of the United States
www.arcus.org*

*An archive of the event will be available shortly.
<http://www.polar-trec.com/polar-connect/archive>*

