Keynote Lecture 15

Tropical mountain permafrost research and update

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This project's objective understands the current permafrost state and to establish long-term permafrost monitoring sites at tropical high mountains along the equator between 23.5 ° N and 23.5 °S. Presence of the permafrost strongly affects local hydrologic regimes and the impact of natural disasters. Also this will greatly increase global cryosphere structure and local knowledge and to aid science education.

The tropical high mountain climatic system plays an influential role in the global climate system. The borehole data that result from this study will provide a quality spatial-resolution data set from tropical mountains for the first time then connecting between Arctic and Antarctic cryosphere. The presence of permafrost in tropical mountains has been determined and some borehole data has been obtained, but further/deeper research is needed to gain a greater understanding of climate signals. The additional data gathered from the proposed research will aid the research community in the understanding of today's thermal state of permafrost and encourage science education in the younger generation. This project offers great opportunities for both the science and education communities.

This project will contribute much-needed data to several working groups in the international science community, also provide unique and valuable opportunities for field experience and education to generally underserved groups in rural and predominantly Hawaiian, African and Latin American communities, including isolated communities along the Altiplano, Peruvian and Bolivian Andes. In addition, the project will represent a successful collaboration between the science/research and education communities, and offer valuable insight into difficult thin-air drilling operations. Thus far, we have had promising success in this difficult fieldwork. The data resulting from this research will remain a useful record for future climate studies.