



Permafrost Facts

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1. Permafrost is permanently frozen soil or rock that maintains a temperature below 0 °C continuously for two years or longer. (Remember - permafrost is defined only by temperature).
2. Continuous permafrost occurs throughout an entire region. Discontinuous permafrost occurs in specific locations in a region. Fairbanks and surrounding areas have discontinuous permafrost.
3. Permafrost does not melt – it ‘thaws’ (Think of taking out frozen meat from the freezer. It thaws, it does not melt).
4. In a permafrost environment, active layer is the top layer that thaws in the summer and refreezes when it gets colder.
5. When permafrost that has very little moisture ‘thaws’ we do not have very big problems. If permafrost with a lot of ice (water) thaws, then we have big problems, because the ground loses its strength and then is not so good for constructing buildings. (Compare with a situation where you kept your eraser on top of a chunk of frozen meat, and another eraser on top of a block of frozen ice cream. Then you let the meat and ice cream thaw).
6. Plants can only grow in the active layer. Permafrost prevents plant roots from penetrating deeply into the soil. Any tall plants growing in permafrost areas can therefore easily fall when there is a strong wind.
7. To construct stable buildings on top of permafrost you need to take special steps. You can (a) build on pillars so that the building is not directly in contact with permafrost (air in between is an insulator), (b) keep permafrost frozen by taking away heat (eg. the pipeline you visited), (c) you can thaw the permafrost out.