

Russia's "Kingdom of Winter" is thawing

As the Arctic, including much of Siberia, warms twice as fast as the rest of the world, the permafrost – permanently frozen ground – is thawing, putting cities, oil pipelines and other infrastructure at risk

Extent of permafrost (% of area)

Continuous (90-100%)

Discontinuous (50-90%)

Subsea permafrost

Sporadic (10-50%)

Isolated patches (0-10%)



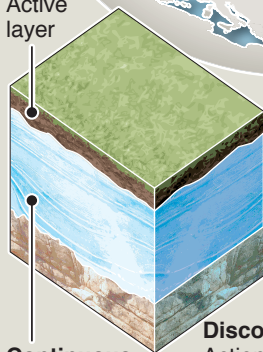
Permafrost: Formed 11,700 years ago – covers almost 65% of Russia. 80% of Russia's gas production is in Arctic

Srednekolymsk: Summer above Arctic Circle is now four weeks longer than in 1980

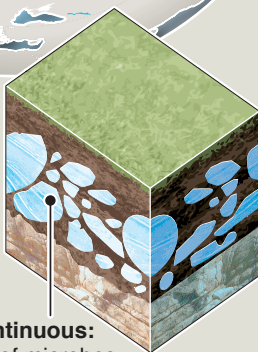
Permafrost warmed by 3°C during 20th century

Russian permafrost contains estimated 70 billion tonnes of methane

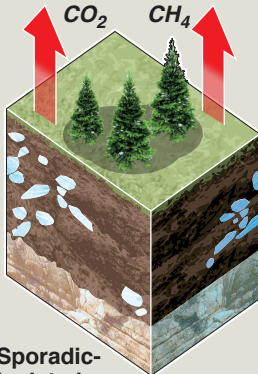
Active layer



Continuous: Permafrost contains plant and animal remains



Discontinuous: Action of microbes causes organic material to decompose into carbon dioxide (CO_2) and methane (CH_4)



Sporadic-isolated: CO_2 and CH_4 released into atmosphere