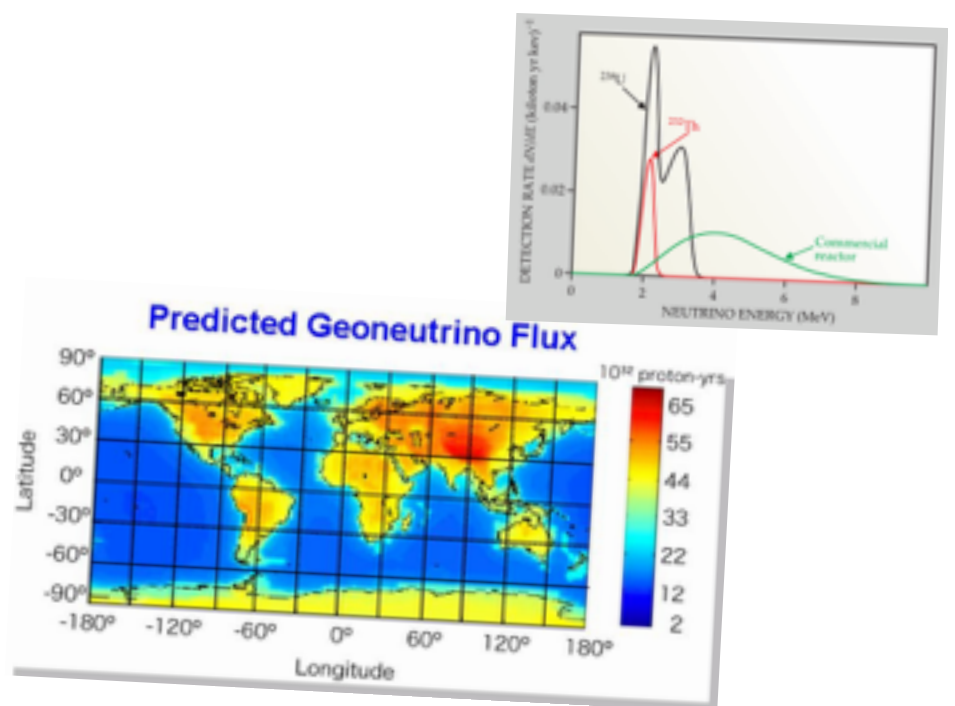


Geoneutrinos and heat production in the Earth

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Geo-neutrinos, produced during beta decays of naturally occurring radioactive isotopes in the Earth, are a unique direct probe of our planet's interior. The kTon-scale, underground, liquid scintillation detectors in Japan and Italy, which measure the flux of these electron anti-neutrinos, reveal that radiogenic heat from the decay of Th and U (only detectable signal) contributes between 20% and 50% of the Earth's present-day power (46 ± 3 TW). These particle physics experiments are now establishing limits on acceptable compositional models for the Earth and are defining the amount of nuclear power inside the Earth available to drive plate tectonics, mantle convection, and the geodynamo.

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