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## radionuclide fallout: a marker for the start of the Anthropocene Epoch

*Friday 2 July 2021 12:00 (30 minutes)*

The Anthropocene Working Group of the Subcommittee on Quaternary Stratigraphy is tasked with gathering evidence to assess the Anthropocene as a potential new formal unit within the Geological Time Scale. If approved, this would be the first such unit that directly reflects a pervasive shift in the Earth System due to human activities. Evidence includes the appearance and rapid dispersal of many new mineral forms, rock types and modification of sedimentary processes. Biological evidence includes the irreversible consequences of extinctions, unprecedented species invasions and dominance of domesticated species. Recent climate and sea level trends are outside the trajectory of the previous ~11,000 years. Chemical signals include isotope patterns altered by unprecedented perturbations to the carbon and nitrogen cycles, with many disseminated metal and persistent organic pollutants forming novel signatures. Anthropogenic influence on geological signals commenced thousands of years ago, but the mid-20th century provides the most pronounced inflection in most global trends, reflecting surges in human population, energy consumption (especially hydrocarbons), technological innovation and international trade. Despite atmospheric testing of nuclear devices not being a fundamental cause of this Earth System shift, these detonations have left almost globally synchronous radionuclides traces ideal for marking the onset of the Anthropocene in multiple geological archives. This presentation details the variable nature and associated problems related to using the so-called “bomb-spike” and ongoing plans for developing a proposal for a formal “golden-spike” section in potential host environments.

### Promotional text

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**Session Classification:** Series of talks on the Anthropocene

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