The geology of the Anthropocene

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Humans have become major global forces in reshaping the Earth's surface. The deliberate shift of soil and rock for large scale and rapid urbanisation, waste disposal and mineral exploitation, humans has transformed the landscape. Some estimates suggest that the material moved annually by humans exceeds that transported by rivers to the oceans by a factor of almost three. The global impact of humans on landscape evolution and the sedimentary cycle is significant.

Evidence for this landscape transformation and anthropogenic sedimentation is commonly left behind in the geological and archaeological record, in the form of anthropogenic landforms and Artificial Ground. In association with anthropogenic changes to the other parts of the physical, chemical and biological earth system, some scientists argue that there is evidence that we have entered a new geological Epoch: the Anthropocene.

Artificial Ground provides evidence for human impact and modification of the sedimentary record in the subsurface. However, it is also associated with rapid thickness changes, variable geological and geotechnical properties and contaminated land that create potential hazards to development. Artificial Ground may also be a considered a resource however, where it comprises for example archaeological deposits and structures, economic metalliferous deposits in waste tips or recyclable materials for construction aggregates.

In the UK, the British Geological Survey represents Artificial Ground on its geological maps and increasingly in 3D geological models using a five tier classification system. This system is designed to provide a framework for the characterisation of anthropogenic landscape impact and the creation of man-made strata.