Panel ID	057
Author(s)	Akihisa Setoguchi
Title	Arsenic Flow: From Japanese Mountains to American Cotton Field

Abstract

Materials have a history. Humans have excavated the Earth and created new artificial chemicals. These chemicals are scattered across the Earth, altering the landscape and seeping into our bodies. History is embedded with materials, landscapes, and our bodies. This presentation examines the flow of arsenic in the modern world, focusing primarily on Japan. Arsenic was produced as a byproduct of copper mining in the Iwami Silver Mine in the early modern period. Arsenic was sold as a rat killer in metropolitan areas such as Edo and Osaka. In 1877, however, the Meiji government banned the sale of various toxic substances, including arsenic. Arsenic production in Japan increased dramatically in the 1920s when World War I made trade between the U.S. and Europe difficult. Most arsenic was produced in small kilns deep in the mountains. The product was transported to Osaka and other cities and refined in factories. It was transported across the Pacific to the United States, where it was sprayed onto cotton farms as a pesticide. In the mountains of Japan and factories and farms in the U.S., arsenic has changed the landscape and permeated the human body. From this history, this presentation considers the transformation of Earth caused by human-made substances.

Keywords	Disasters

Panel ID	083
Author(s)	Julia Adeney Thomas
Title	Altered Earth in Japan_ Putting Science and History Together in the Anthropocene

Abstract

" This presentation serves as an introduction to the plenary panel titled ""Scientific and Humanistic Perspectives on Altered Earth in Japan."" It explains what the Anthropocene is and how this sudden, recent, and irreversible planetary transformation changes our understanding of environmental history with a special focus on Japan. The essential argument is that the sciences and the humanities are both necessary to understanding the Anthropocene, how it arose, and how we might navigate it because that the perspectives they provide are essentially different in terms of the questions asked and the understanding provided. As both bear down on the same unprecedented and terrifying reality, constructive, multidisciplinary conversations are at a premium.

The Panel Proposal is as follows: “Scientific and Historical Perspectives on Altered Earth in Japan”

This panel takes as its jumping off point the Anthropocene Epoch—defined as the mid-twentieth-century transformation of Earth from the relatively stable Holocene epoch of the past 11,700 years to its new, destabilized, irreversible, and still evolving state. Understanding this new planetary state requires not only the sciences but also the history and prospects of particular places such as Japan. Our panel combines scientists with historians to highlight the challenges of our altered Earth in this one very important place. On the one hand, Japan has always been at the mercy of geological forces which have brought both beauty and tragedy to its people, and Japanese society has developed many means of coping with disaster while maintaining social cohesion. On the other hand, in the Anthropocene, it is even more vulnerable. By bringing together a scientific grasp of Japan’s waters, mountains, biodiversity, soils (depending on contributors) with an

understanding of its history, politics, culture and demography (depending on contributors) may open up new ways to confront Anthropocene challenges.	
Keywords	Japan, Anthropocene, Humans, Disasters

Panel ID	103
Author(s)	Fernando Ortiz-Moya
Title	Rethinking Decline: Charting New Futures for Japan's Depopulating Municipalities
Abstract	
"Japan is confronting an unprecedented demographic crisis: over the next 50 years, its population is projected to decline by almost 40 million. Smaller cities and towns, already grappling with depopulation, ageing populations, and economic decay, will be the most impacted by this shift. If left unmanaged, depopulation puts many local governments at risk of disappearing over the next 50 years, as they face reduced tax revenues, surplus infrastructure, excess buildings, and increasing difficulties in delivering essential services. How are Japanese cities and towns managing shrinkage? This presentation explores the emergence of alternative approaches to pro-growth policies that envision ways to manage a sustainable transition to a smaller population. Traditionally, Japanese local governments, encouraged by national policy, have sought to halt and reverse their decline. They tirelessly try to lure urban migrants, increase birth rates, attract businesses, and curb outmigration. This growth-at-all-costs obsession threatens to close windows of opportunity for managing a soft landing while exhausting already limited resources. Eventually, continuous shrinkage will force local governments to abandon growth-based planning and redesign their communities: they must learn to shrink gracefully. Some municipalities are already charting this different course. By reflecting on the cases of Shimokawa, Kamikatsu, and Yakushima, this presentation argues that shrinking municipalities need to break free from pro-growth strategies and adopt more sustainable forms of development. These municipalities are bringing socio-environmental concerns to the centre of their strategies, identifying models to transition into a smaller size.	
Keywords	Land, Humans, Shrinking Cities, Sustainable Transitions

Panel ID	173
Author(s)	Michinobu Kuwae and Yoshiki Saito
Title	Stratigraphic evidence of the Anthropocene onset in the early 1950s using anthropogenic fingerprints in the Beppu Bay sediments, the standard auxiliary boundary stratotype
Abstract	
"The question of when the Anthropocene began has been the subject of geological investigation by the Anthropocene Working Group. However, pinpointing the onset of the Anthropocene has been challenging due to variations in the timing of anthropogenic signals across proxies and regions, as well as the progressive intensification of human impacts over time. In the sediments of Beppu Bay, Japan, 87 anthropogenic fingerprints have been identified, including biological shifts, increases in radionuclide concentrations from nuclear testing, and the first appearance of persistent organic pollutants. While there is no synchronicity among these diverse anthropogenic signals, the number of these signals increases sharply after 1953. The inflection point in the cumulative number of fingerprints coincides with the onset of rapid GDP growth in Japan, suggesting that it reflects the rapid intensification of	

human disturbance of the environment during the Great Acceleration.
A rapid increase in anthropogenic fingerprints during the early 1950s was also seen in stratigraphic records spanning the past 7,000 years from 137 sites worldwide. The unprecedented surge across all the regions indicates that human influences began to match many of the natural forces that control processes and cycles, overwhelming some of the functions of the Earth system during this period. This unique signal in the global strata provides evidence that the Holocene conditions terminated and the Anthropocene began. The fingerprint stratigraphy in Beppu Bay plays an important role as a standard auxiliary boundary stratotype corroborating that the Anthropocene began in the mid-20th century.

Keywords	Humans, Anthropocene, stratigraphy

Panel ID	188
Author(s)	Sakura Christmas
Title	Of Mines and Magnets: An Environmental History of the Toyota Prius

Abstract

In December 1997, the Toyota Motor Corporation released the Prius, the world's first mass-produced gasoline-electric hybrid car. The Prius brought the promise of green technology to the automobile industry, making it possible to imagine an eventual future without fossil fuel dependency. Central to Toyota's move towards clean energy were the neodymium magnets that propelled the electric motor of the Prius. This talk troubles the recent history of green technology by tracing its products and pollutants to their sites of extraction, in this case, the Bayan Obo Rare Earth Mine in Inner Mongolia. It locates the origins of this resource frontier to the Japanese occupation, from 1939 to 1945. Normalizing relations with China reopened this resource frontier in the 1970s and 80s, which galvanized the technological enterprises that were so crucial to Japan's economic rise. This phenomenon relied as much on foreign materials as it did on domestic research and design, with profound effects to lives and livelihoods beyond Japan's borders.

Keywords	land, disasters, waste, humans