

Future archeologists to look back on a world of plastic

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University of Leicester palaeobiologist Jan Zalasiewicz, left, with US Planetary Science Institute astrobiologist David Grinspoon. Picture: Jane Dempster

If the human race blows itself — up or sinks or fries — researchers in another era may infer our existence from a layer of plastic in the geological record.

British palaeobiologist Jan Zalasiewicz will tell a Sydney conference today that the Anthropocene epoch is etching its signature more rapidly than any other period in Earth's history, with the possible exception of the dinosaurs' dying days.

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If catastrophe claims our species, the great buildings of our civilisation will last a few centuries at best, Professor Zalasiewicz said. But he will tell Macquarie University's Big History forum that the "stratigraphic proxies" of our presence — including fossilised industrial smoke particles, radioactive traces of nuclear tests and vast assemblages of 'technofossils' — could endure for billions of years.

Plastic will comprise about 10 per cent of the human "stratum", with five billion tonnes having been produced since the 1950s. "That is enough to put a layer of plastic wrap around the whole Earth," he said.

Plastic has already entered the rock record in the form of "plastiglomerate" — a term coined by a Canadian geologist for grains and natural fragments glued into lumps by molten plastic.

Professor Zalasiewicz said plastiglomerate "rocks" could last for millions of years, as could human fossils containing artificial hips and dental fillings.

He said several centuries of landscape-level changes — such as widespread extinctions and species transplantation — would appear "almost instantaneous" from the perspective of the far future.

But global climate and sea-level changes to date would not show up in the geological record, with levels still within the "envelope" of recent natural variability.

US astrobiologist David Grinspoon, who will also address the conference, said climate change, nuclear weapons and biotechnology "errors" ranked among the existential threats facing the human race. "There's a whole cottage industry of people talking about ways we could destroy ourselves," he said.

Dr Grinspoon said it was mathematically probable that extraterrestrial civilisations had faced similar crises. The question was whether they had lasted long enough for us or other alien hunters to detect their signature in the cosmic record.