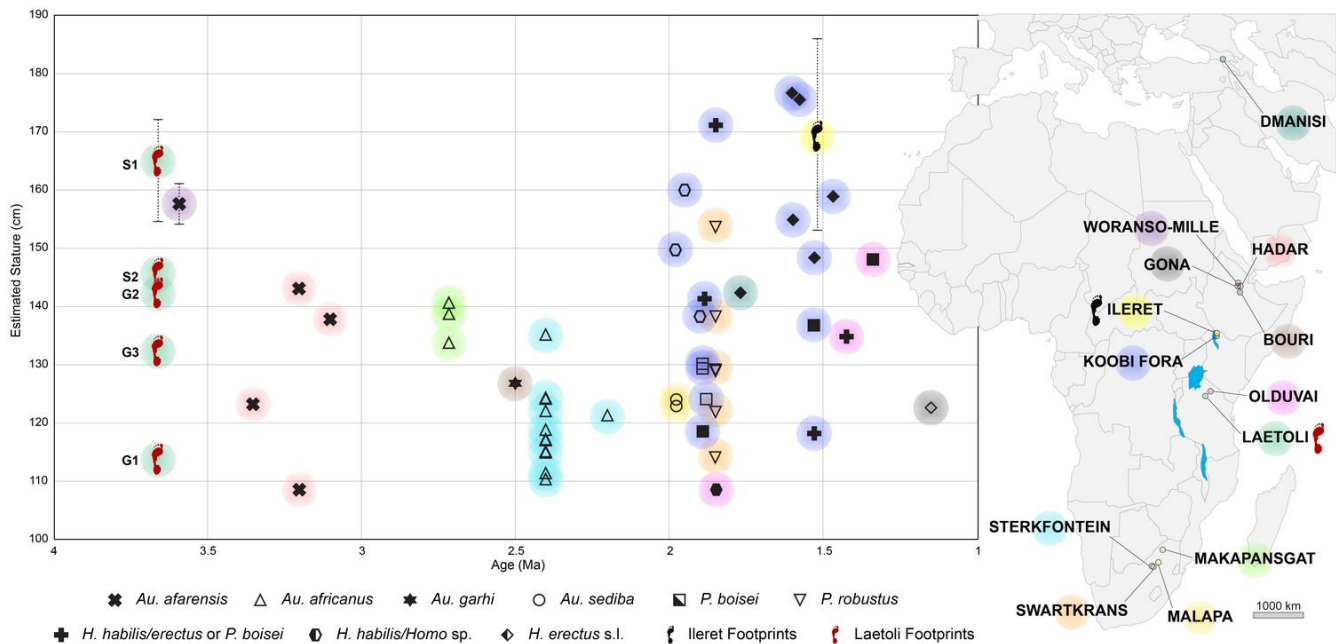




New Laetoli Footprints and Hominin Body Size



Caption: The data points represent the estimated stature (height) of hominin individuals based on fossilized remains or footprints. The data points are arranged in order of the age of the fossil/footprint, between 4 million and 1 million years ago (Ma). The colors represent where the fossil or footprint was found on the map. The shape of the symbol inside the colored circle represents the hominin species. Shaded symbols represent estimated stature based on femur length. Unshaded symbols represent estimated stature based on the diameter of the femur head. Footprint symbols represent estimated statures based on footprint length. For three of the individuals, several footprints or fossilized remains were used to estimate stature and bars represent the range.

BACKGROUND INFORMATION

Laetoli, in northern Tanzania, is a paleontological site made famous in the 1970s when Mary Leakey and her colleagues discovered the tracks of three bipedal hominin individuals (G1, G2, and G3) dating back 3.66 million years. Hominins are a taxonomic group which includes humans and their extinct ancestors. At the time, the footprint discovery was the earliest known evidence of hominins walking upright. Research at Laetoli has been ongoing, and the site has provided evidence for understanding early hominin species (specifically *Australopithecus afarensis*) and the environment in which they lived. In 2015, scientists were excavating a site in Laetoli when they uncovered two new sets of hominin tracks (S1 and S2) located about 150 meters south of the tracks found by Leakey. These tracks are on the same surface, dated to the same time period, and oriented in the same direction as the Leakey tracks. Using previously established formulas, they inferred the body mass, stature, and walking speed of the two individuals using the size and shape of the footprints. There is some debate about the variability in body size between hominin individuals. Some paleobiologists hypothesize that as hominins increased in stature, they became better equipped to disperse from Africa to other parts of the world. Such a hypothesis would be supported by evidence showing a linear progression of increasing hominin stature over time. Other biologists hypothesize that variability in hominin stature is linked to sexual dimorphism or adaptation to different environments. For example, in species in which males are expected to compete with each other for a chance to mate with females, there is often a large size difference between males and females, called sexual dimorphism. Such a hypothesis would be supported by evidence showing large variations in stature between individuals of the same species.