



Press Release

The first of our kind – Scientists discover the oldest *Homo sapiens* fossils at Jebel Irhoud, Morocco

New finds push back the origins of our species by 100,000 years and show that by about 300,000 years ago important changes in our biology and behavior had taken place across most of Africa

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An international research team led by Professor Jean-Jacques Hublin of the Max Planck Institute for Evolutionary Anthropology (Leipzig, Germany) and Dr. Abdelouahed Ben-Ncer of the National Institute for Archaeology and Heritage (INSAP, Rabat, Morocco), and including Professor Katerina Harvati from the Senckenberg Centre for Human Evolution and Palaeoenvironment at the University of Tübingen, uncovered and analyzed fossil bones of *Homo sapiens* along with stone tools and animal bones at Jebel Irhoud, Morocco. The finds are dated to about 300 thousand years ago and represent the oldest securely dated fossil evidence of our own species. This date is 100 thousand years earlier than the previously oldest *Homo sapiens* fossils. The discoveries reported in two papers in the June 8th issue of the journal *Nature* by Hublin *et al.* and by Richter *et al.* reveal a complex evolutionary history of mankind that likely involved the entire African continent.

Both genetic data of present day humans and fossil remains point to an African origin of our own species, *Homo sapiens*. Previously, the oldest securely dated *Homo sapiens* fossils were known from the site of Omo Kibish, in Ethiopia, dated to 195 thousand years ago. At Herto, also in Ethiopia, a *Homo sapiens* fossil is dated to 160 thousand years ago. Until now most researchers, therefore, believed that all humans living today descended from a population that lived in East Africa around 200 thousand years ago. “We used to think that there was a cradle of mankind 200 thousand years ago in east Africa, but our new data reveal that *Homo sapiens* spread across the entire African continent around 300 thousand years ago. Long before the out-of-Africa dispersal of *Homo sapiens*, there was dispersal within Africa,” says palaeoanthropologist Jean-Jacques Hublin.

The Moroccan site of Jebel Irhoud has been well known since the 1960s for its human fossils and for its Middle Stone Age artefacts. However, the

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interpretation of the Irhoud hominins has long been complicated by persistent uncertainties surrounding their geological age. The new excavation project, which began in 2004, resulted in the discovery of new *Homo sapiens* fossils in situ, increasing their number from 6 to 22. These finds confirm the importance of Jebel Irhoud as the oldest and richest African Middle Stone Age hominin site documenting an early stage of our species. The fossil remains from Jebel Irhoud comprise skulls, teeth, and long bones of at least 5 individuals. To provide a precise chronology for these finds, researchers used the thermoluminescence dating method on heated flints found in the same deposits. These flints yielded an age of approximately 300 thousand years ago and, therefore, push back the origins of our species by one hundred thousand years.

“These analyses and new discoveries, and especially the new, very ancient date for the site of Irhoud, show the deep roots of our modern human lineage and highlight the potential importance of relatively neglected geographical areas for human evolution. Our results suggest that the story of our ancestors likely involved many populations across the African continent,” says Katerina Harvati, who contributed the analysis of the external anatomy of the braincases of the Irhoud crania.



The first of our kind. Two views of a composite reconstruction of the earliest known *Homo sapiens* fossils from Jebel Irhoud (Morocco) based on micro computed tomographic scans of multiple original fossils. Dated to 300 thousand years ago these early *Homo sapiens* already have a modern-looking face that falls within the variation of humans living today. However, the archaic-looking virtual imprint of the braincase (blue) indicates that brain shape, and possibly brain function, evolved within the *Homo sapiens* lineage. Picture credit: Philipp Gunz, MPI EVA Leipzig (License: CC-BY-SA 2.0).



The first of our kind. A composite reconstruction of the earliest known *Homo sapiens* fossils from Jebel Irhoud (Morocco) based on micro computed tomographic scans of multiple original fossils. Dated to 300 thousand years ago these early *Homo sapiens* already have a modern-looking face that falls within the variation of humans living today. However, the archaic-looking braincase indicates that brain shape, and possibly brain function, evolved within the *Homo sapiens* lineage. Picture credit: Philipp Gunz, MPI EVA Leipzig (License: CC-BY-SA 2.0).

Publication:

Jean-Jacques Hublin, Abdelouahed Ben-Ncer, Shara E. Bailey, Sarah E. Freidline, Simon Neubauer, Matthew M. Skinner, Inga Bergmann, Adeline Le Cabec, Stefano Benazzi, Katerina Harvati, Philipp Gunz: New fossils from Jebel Irhoud (Morocco) and the Pan-African origin of *Homo sapiens*. *Nature*, 8 June 2017, DOI: 10.1038/nature22336

Daniel Richter, Rainer Grün, Renaud Joannes-Boyau, Teresa E. Steele, Fethi Amani, Mathieu Rué, Paul Fernandes, Jean-Paul Raynal, Denis Geraads, Abdelouahed Ben-Ncer, Jean-Jacques Hublin, Shannon P. McPherron: The Age of the *Homo sapiens* fossils from Jebel Irhoud (Morocco) and the origins of the Middle Stone Age. *Nature*, 8 June 2017, DOI: 10.1038/nature22335

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