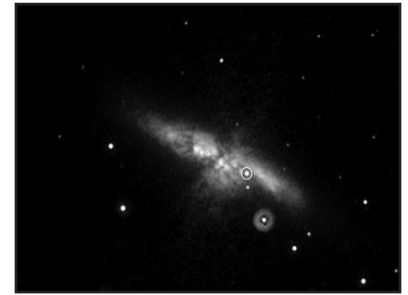


# How to See into the Past

## Look up at the night sky

The light you see emerged many years, even millennia, ago and has just traveled close enough to Earth to be visible with the naked eye or a telescope. The nearest optical supernova in two decades, SN 2014J was discovered on January 21, 2014. SN 2014J occurred in the Cigar Galaxy and lies about 12 million light-years away. When this blast occurred, geologically speaking Earth was in the Miocene Epoch.



## Count the rings on a tree

Dendrochronology is the study of growth rings, which scientists can use to date temperate zone trees. In contrast, tropical trees lack the dramatic seasonal changes that produces periods of rapid growth and dormancy that result in growth rings. In 1964 Donald Currey, a graduate student in the geography department at the University of North Carolina, unintentionally cut down the oldest living organism on the planet. In what became known as the "Prometheus Story," Currey's core sample tool became lodged in bristlecone pine and the park officials advised him to simply cut down the tree, rather than lose the tool and waste this research opportunity. The tree Currey cut down became known as Prometheus, which was estimated to be 4,900 years old. Currently the oldest known living tree, about 4,600 years old, is in the White Mountains of California; there are likely even older bristlecones that have not been dated.



## Look at the desert landscape

Movement and changes in the earth's geology are apparent in the striated layers of rock and dirt, especially visible in the desert's barren landscape. Stratigraphy is the study of the stratified layers of sedimentary and volcanic rock. Biostratigraphy, chronostatigraphy, magnetostratigraphy, and archeological stratigraphy are all specializations that look at fossils, magnetism, and artifacts to help contextualize and date the Earth and its changes. The most recent geological period, the Holocene era covers the last 11,700 years and also corresponds with the early Mesolithic period when human began growing their own food. The Prometheus bristlecone pine dates from the Holocene era, while the supernova 2014J occurred during the Miocene Epoch, 23.03 to 5.3 million years ago. During the Miocene Epoch, Earth had a warmer climate than those in the proceeding Oligocene or the following Pliocene. In addition to kelp forests, grassland ecosystems made their first appearance, which complimented Paleolithic man's hunter gatherer lifestyle.

