

# The integrated schizophrenia of Quaternary geochronology II

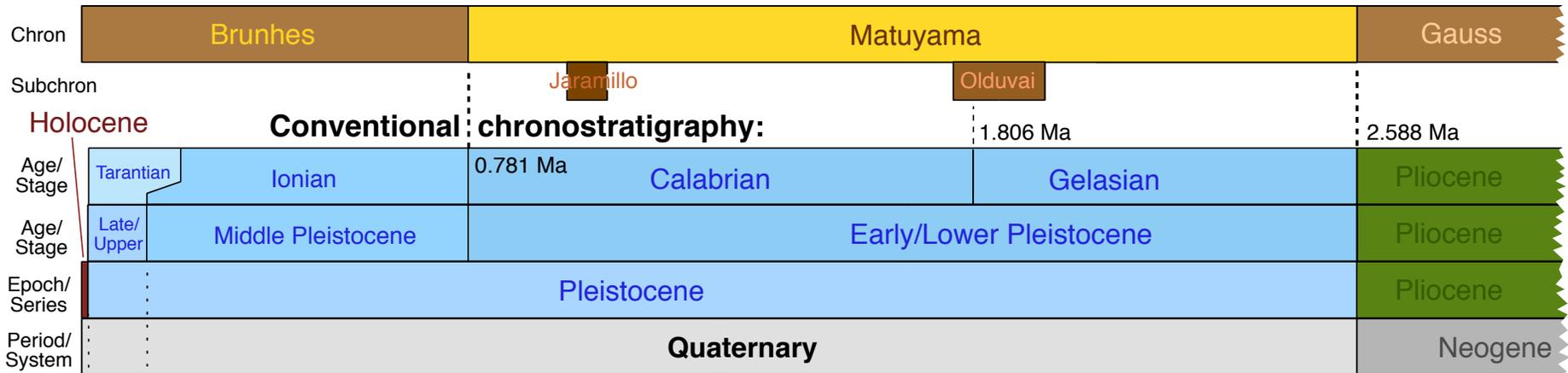
The named geochronology of Quaternary ages (Early-Middle-Late Pleistocene or Gelasian-Calabrian-Ionian-Tarantian) is well integrated with magnetic chronostratigraphy. The result is strong definition with respect to time, in that timing of the age boundaries can be well established in stratigraphic sections where magnetic results are available. However, the geochronology boundaries have little to do with changes in climate, which is the main topic of interest in Quaternary science. In contrast, the isotopic chronostratigraphy of the Quaternary (i.e., marine isotope stages) is explicitly a chrono-

stratigraphy of climate (in fact technically called "climatostratigraphy"). That makes the of system of marine isotope stages ideal for contextualizing changes in climate. However, it is has been difficult to assign absolute ages to the marine isotope record, which has largely been dated by orbital tuning (fitting of the record to Earth's orbital parameters). Thus the strength of one side of Quaternary geochronology is the weakness of the other, and vice versa.

The contrast between the two (or three) systems can also be seen in the confusions between it. The

Pleistocene has four named "stages" and 103 isotope "stages". The "Mid-Pleistocene Transition" of isotope stratigraphy is in the named "Early Pleistocene", rather than the Middle Pleistocene. The beginning of the last interglacial in isotope stages (the beginning of MIS 5) has been shown to be a little earlier than the beginning of the last interglacial in named stages (the beginning of the Eemian) (Shackleton et al., 2002). Finally, the beginning of the present interglacial in isotope stages is a little earlier than the beginning of the Holocene in named geochronology, as discussed in another of these pages. Thus the two (or three systems) go somewhat their separate ways – *caveat geochronologator*.

## Magnetic chronostratigraphy:



## Isotopic chronostratigraphy:

