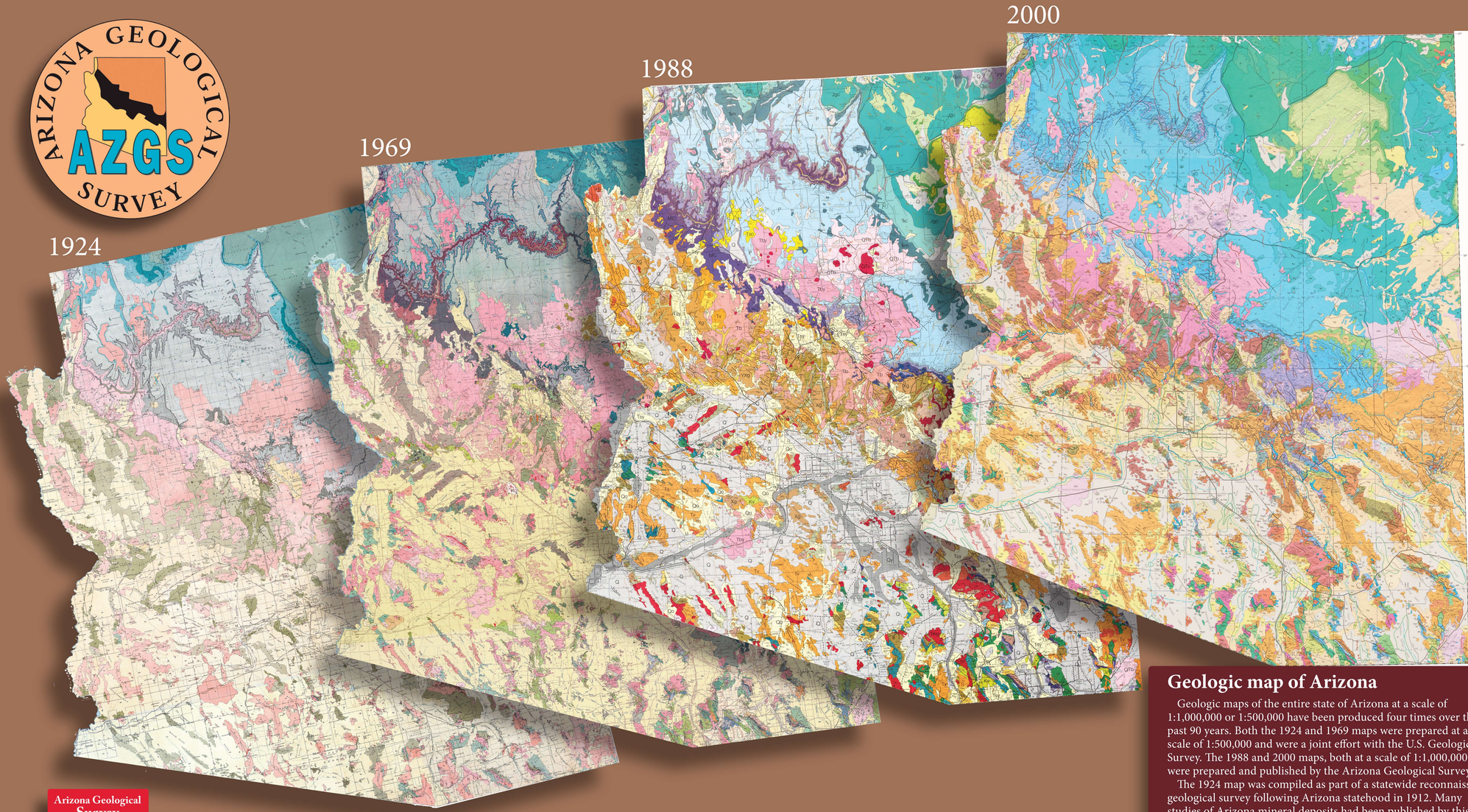

Arizona Geological Survey 1888-2013

Geologic map of Arizona

Geologic maps of the entire state of Arizona at a scale of 1:1,000,000 or 1:500,000 have been produced four times over the past 90 years. Both the 1924 and 1969 maps were prepared at a scale of 1:500,000 and were a joint effort with the U.S. Geological Survey. The 1988 and 2000 maps, both at a scale of 1:1,000,000, were prepared and published by the Arizona Geological Survey.

The 1924 map was compiled as part of a statewide reconnaissance geological survey following Arizona statehood in 1912. Many studies of Arizona mineral deposits had been published by this time, but a complete geologic map had been beyond the scope of earlier surveys. The 1924 map was done without significant use of aerial photographs, and the outlines of many ranges are inconsistent with later maps that used aerial imagery.

The 1969 map was compiled following completion of the Arizona County map series (1:375,000 scale) which made extensive use of aerial photographs. While the outlines of ranges were more accurately represented than on the 1924 map, the ages of many igneous rock units were not well known. The field of isotope geochronology was in its early days of development and dating techniques had not been widely applied. This is especially apparent over large areas of western Arizona that were shown as underlain by Cretaceous volcanic rocks, whereas these units are now known to be ~25-15 Ma.

The 1988 map, which incorporated a large amount of geochronologic data, is an accurate representation of almost all of Arizona, with few changes or surprises likely remaining. This map was superseded by the 2000 map, which added detail and made changes to a few areas where rock ages or fault locations had become better known. Unlike previous maps, the 2000 map was compiled digitally, used shading instead of contours for topography, distinguished Quaternary faults from older, inactive faults, and included depth-to-bedrock contours for Cenozoic basins.