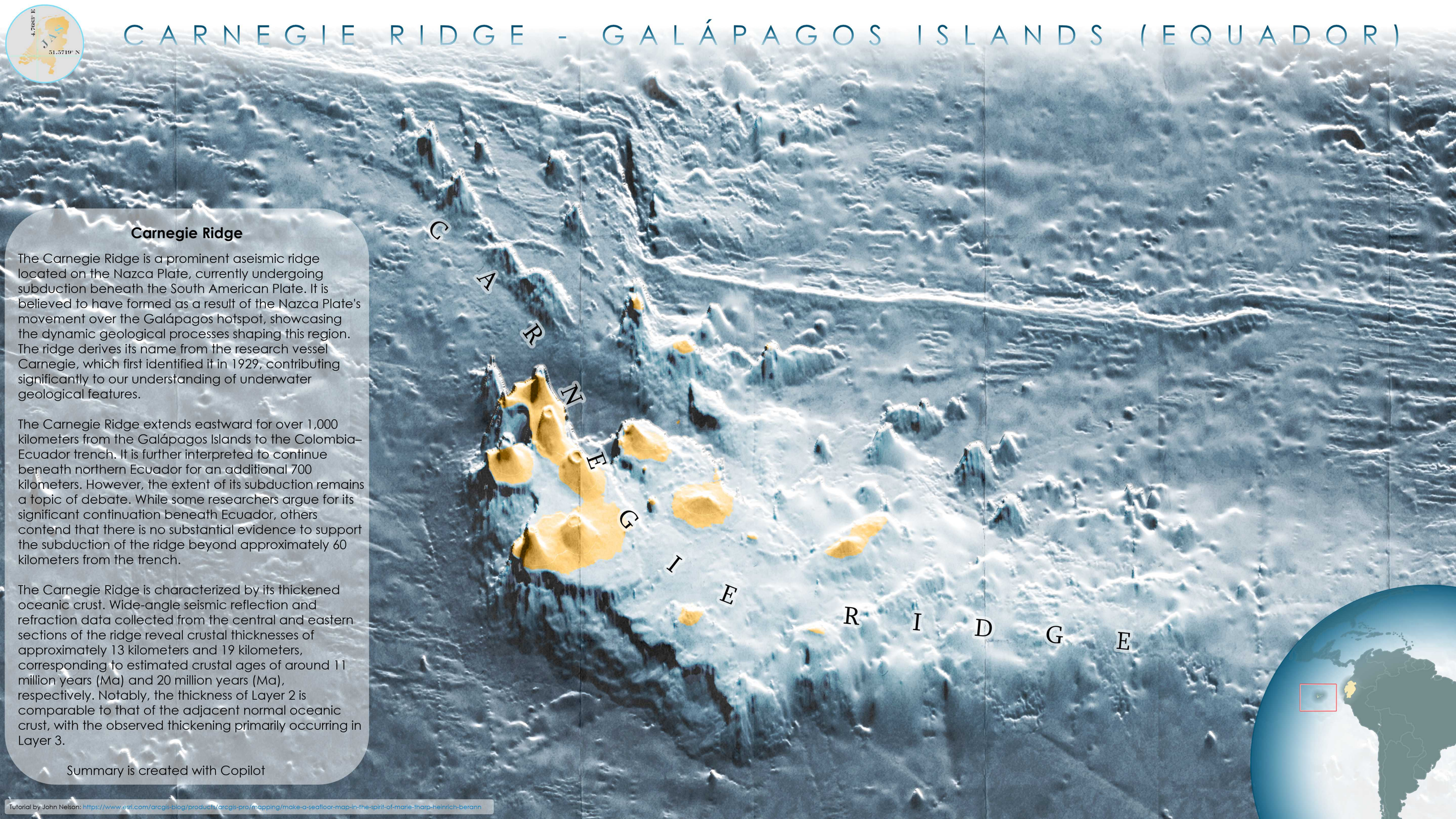

Carnegie Ridge

The Carnegie Ridge is a prominent aseismic ridge located on the Nazca Plate, currently undergoing subduction beneath the South American Plate. It is believed to have formed as a result of the Nazca Plate's movement over the Galápagos hotspot, showcasing the dynamic geological processes shaping this region. The ridge derives its name from the research vessel Carnegie, which first identified it in 1929, contributing significantly to our understanding of underwater geological features.

The Carnegie Ridge extends eastward for over 1,000 kilometers from the Galápagos Islands to the Colombia–Ecuador trench. It is further interpreted to continue beneath northern Ecuador for an additional 700 kilometers. However, the extent of its subduction remains a topic of debate. While some researchers argue for its significant continuation beneath Ecuador, others contend that there is no substantial evidence to support the subduction of the ridge beyond approximately 60 kilometers from the trench.

The Carnegie Ridge is characterized by its thickened oceanic crust. Wide-angle seismic reflection and refraction data collected from the central and eastern sections of the ridge reveal crustal thicknesses of approximately 13 kilometers and 19 kilometers, corresponding to estimated crustal ages of around 11 million years (Ma) and 20 million years (Ma), respectively. Notably, the thickness of Layer 2 is comparable to that of the adjacent normal oceanic crust, with the observed thickening primarily occurring in Layer 3.

Summary is created with Copilot

Tutorial by John Nelson: https://www.esri.com/arcgis-blog/products/arcgis-pro/mapping/make-a-seafloor-map-in-the-spirit-of-marie-tharp-heinrich-berann