

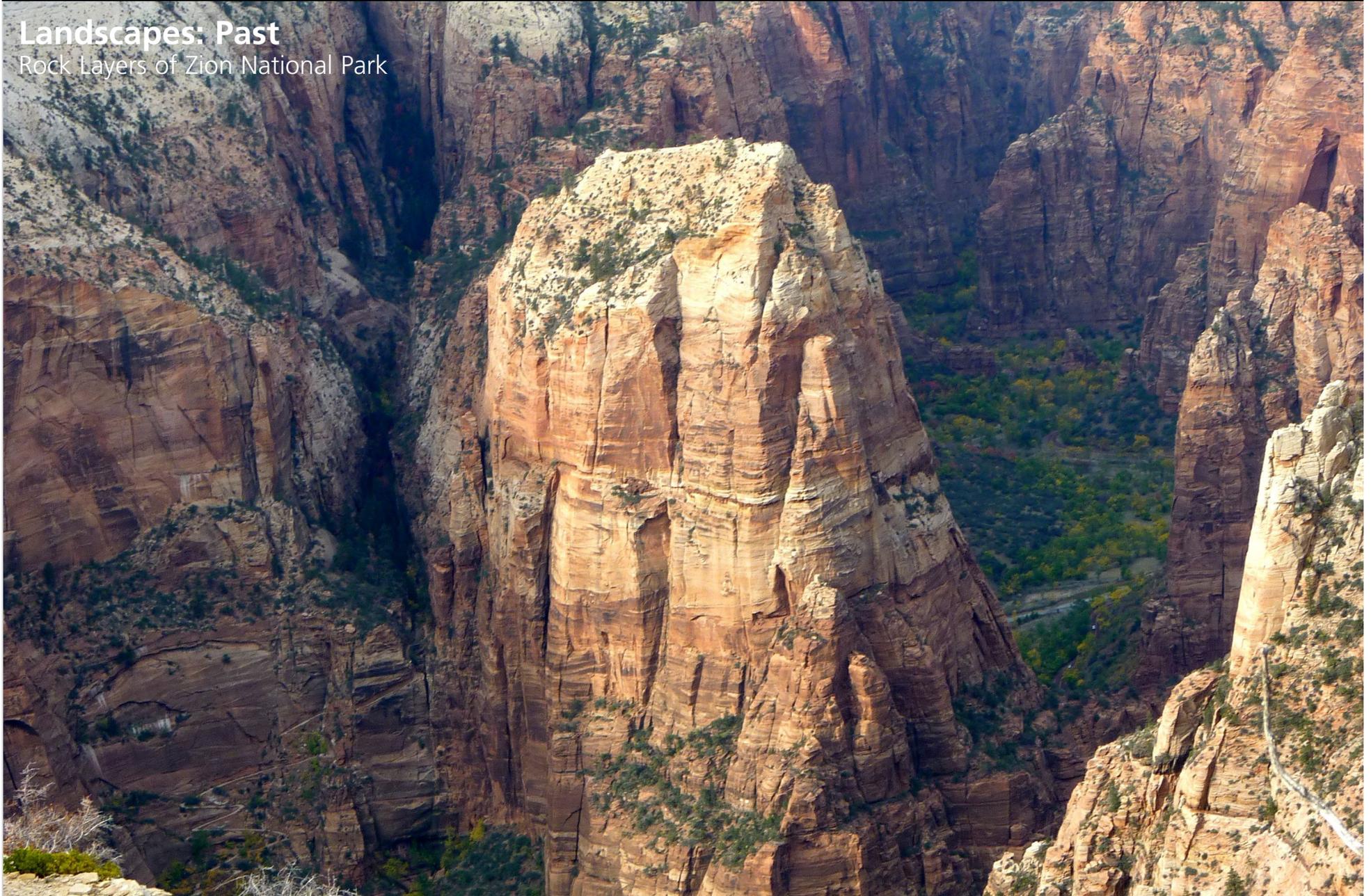
National Park Service
U.S. Department of the Interior

Zion National Park

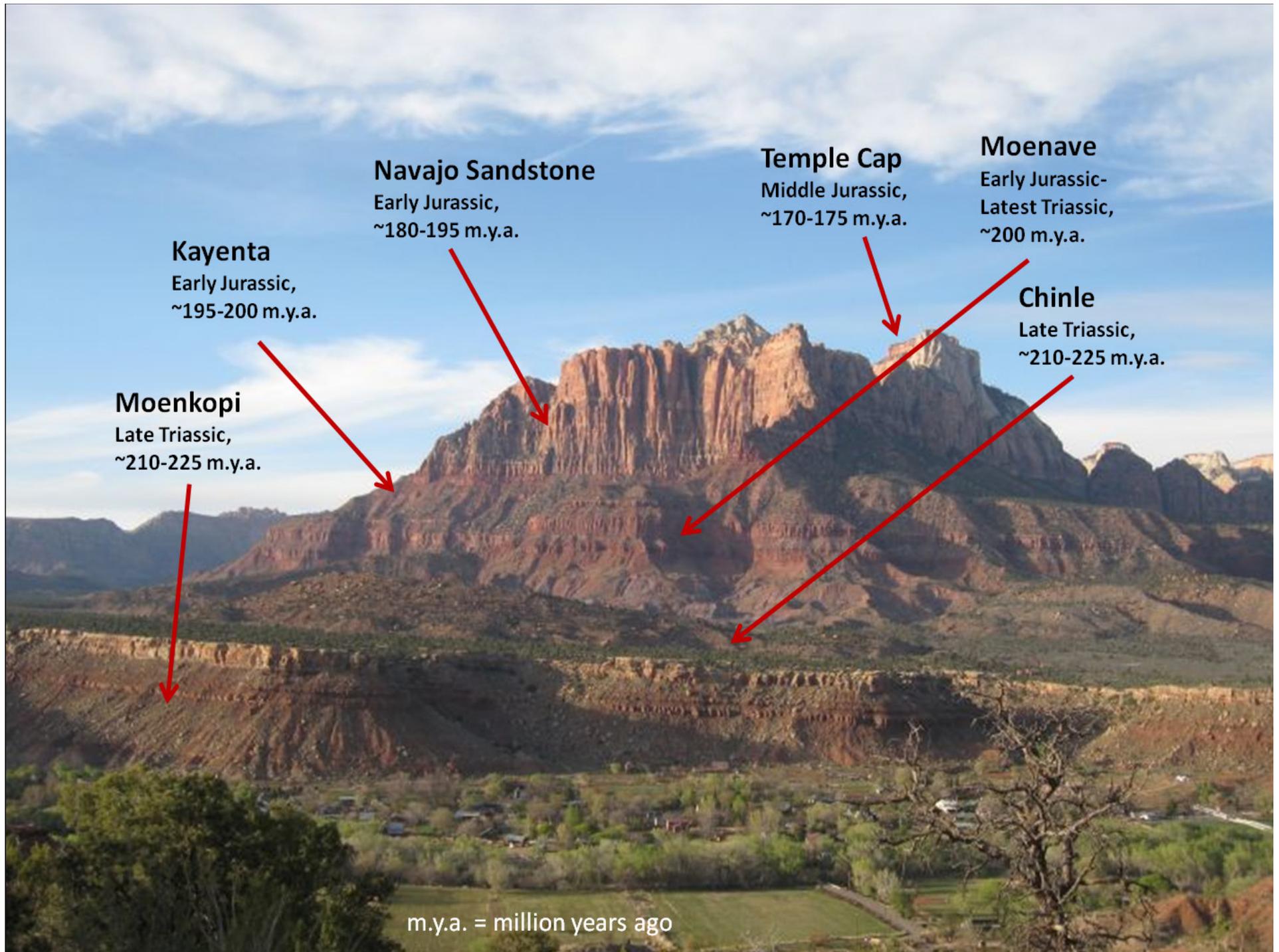


Landscapes: Past

Rock Layers of Zion National Park







Geologic Formations

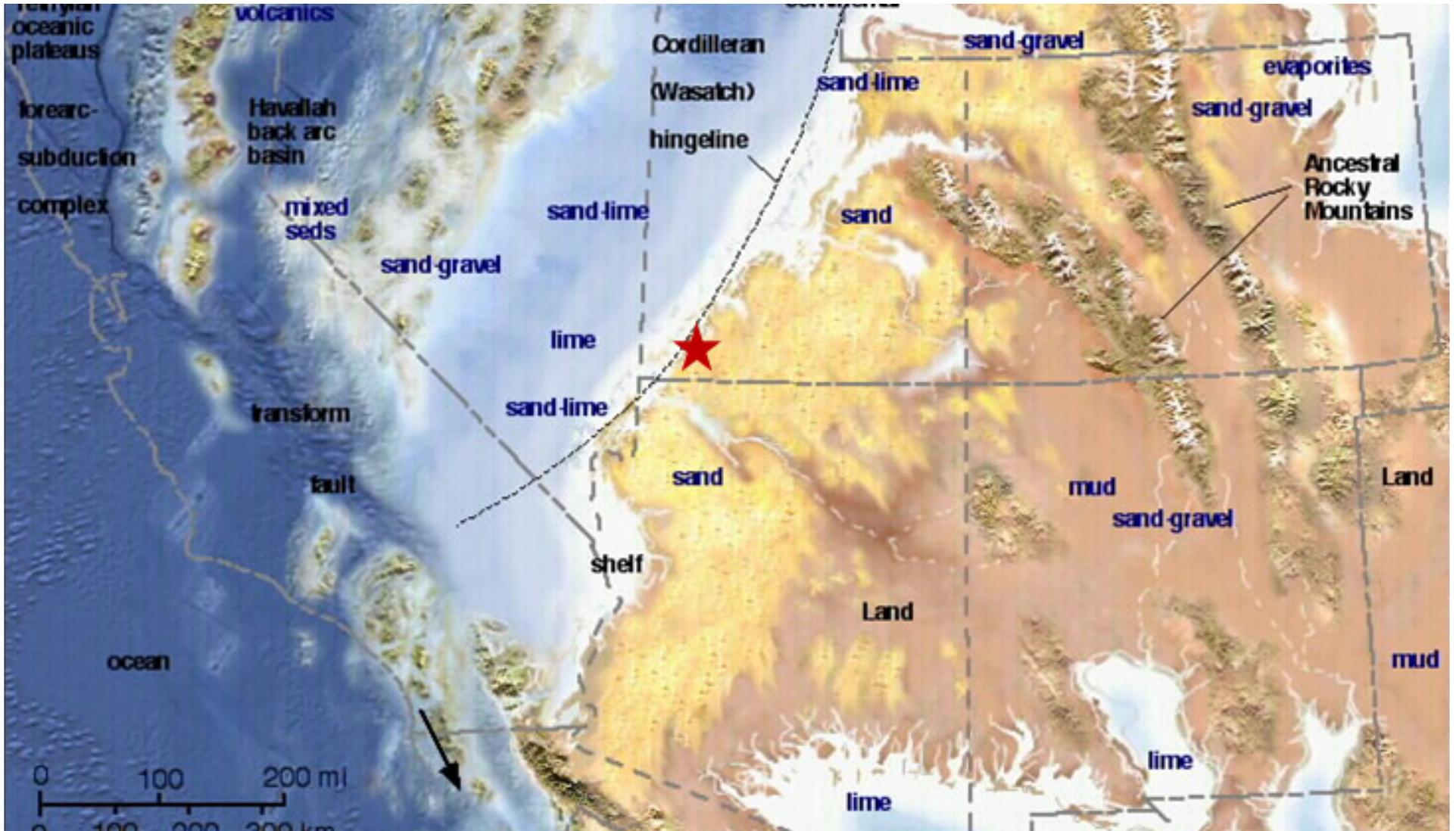


Rock Layer	Appearance	Where To See	Deposition	Rock Type
Cinder cones and lava flows	black layers and cones	Kolob Terrace and west of Rockville	lava flows and cinder cones	basalt and cinders
Carmel	cliffs	Mt. Carmel Junction	shallow sea and coastal desert	limestone, gypsum, sandstone
Temple Cap	cliffs	top of West Temple	desert	sandstone
Navajo Sandstone	steep cliffs 1,600 to 2,200 feet thick red lower layers are colored by iron oxides	tall cliffs of Zion Canyon; highest exposures are West Temple, Checkerboard Mesa believed to be the tallest sandstone cliffs in the world	desert sand dunes covered 150,000 square miles shifting winds during deposition created cross-bedding	cross-bedded sandstone
Kayenta	rocky slopes	throughout canyon	streams	siltstone and sandstone
Moenave	slopes and ledges	lower red cliffs seen from Zion Canyon Visitor Center	streams and ponds	siltstone and sandstone
Chinle	purplish slopes	above Rockville	streams	shale, loose clay, conglomerate
Moenkopi	chocolate cliffs with white bands	rocky slopes from Virgin to Rockville	shallow sea	shale, siltstone, mudstone, others
Kaibab	cliffs	escarpment along I-15 near Kolob Canyons	shallow sea	limestone

Formation of the Kaibab Formation

270 million years ago (Early Permian)

Limestone of today formed in warm, shallow, tropical sea

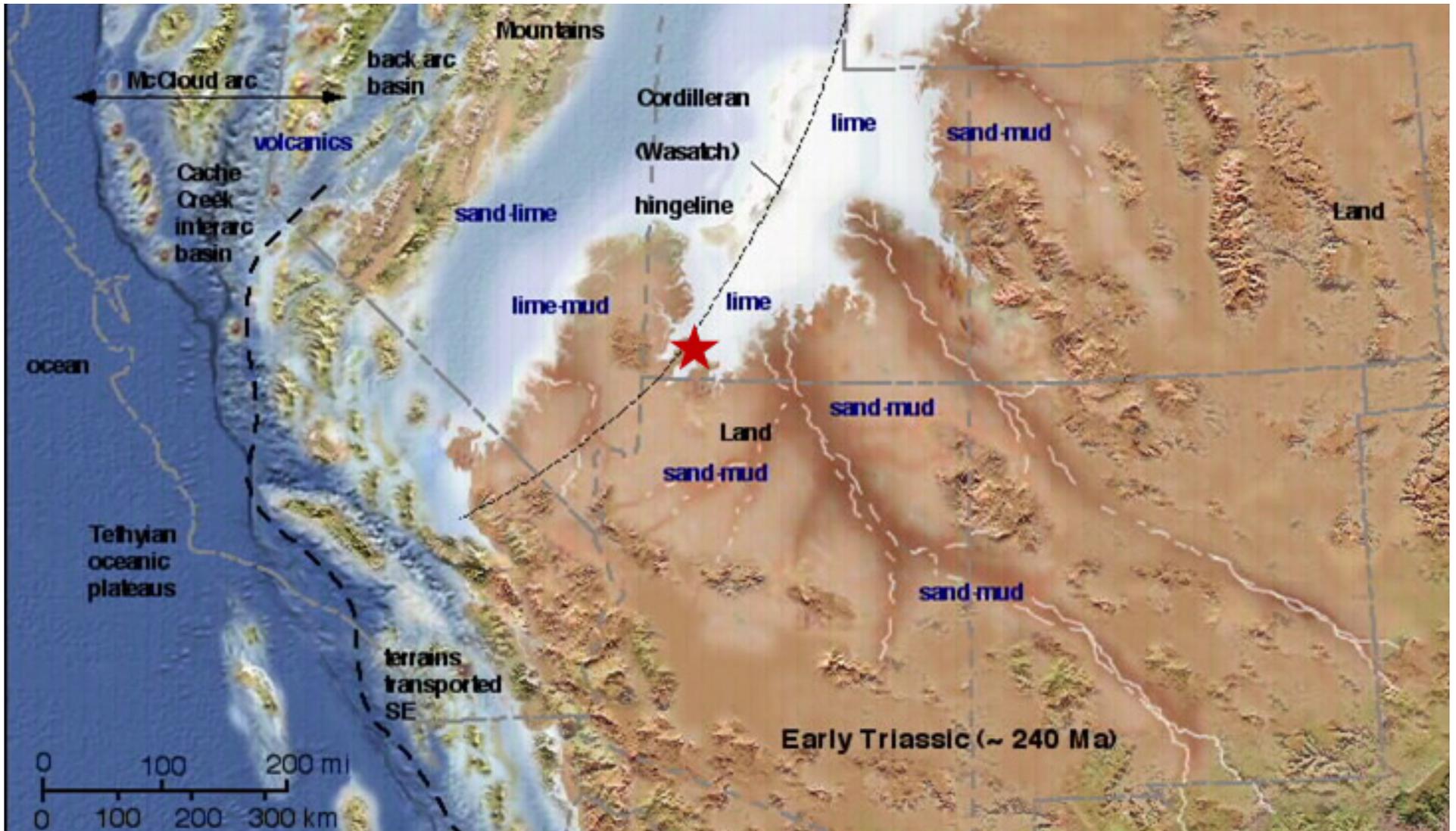


Paleogeographic reconstruction courtesy of Ron Blakey

Formation of the Moenkopi Formation

240 million years ago (Early Triassic)

Mudstone and shale of today formed in from shifting shorelines and muddy tidal flats



Paleogeographic reconstruction courtesy of Ron Blakey

Formation of the Chinle Formation

215 million years ago (Late Triassic)

Shale, conglomerate, and petrified wood of today formed by rivers and distant volcanoes

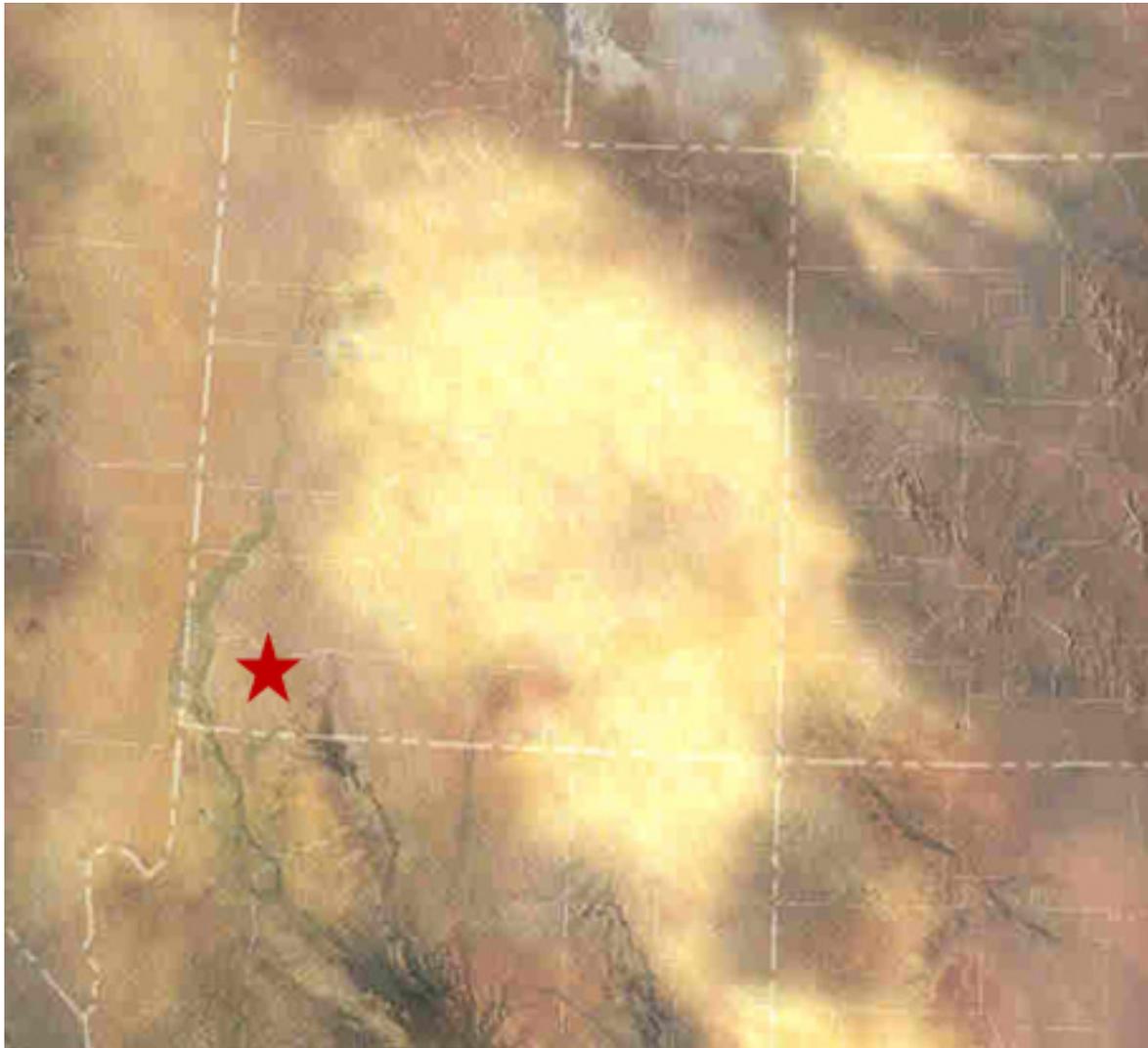


Paleogeographic reconstruction courtesy of Ron Blakey

Formation of the Moenave and Kayenta Formations

200 million years ago (Early Jurassic)

Siltstone and sandstone of today formed by rivers and flood plains in an arid environment



Paleogeographic reconstruction courtesy of Ron Blakey

Formation of the Navajo Sandstone

190 million years ago (Early Jurassic)

Sandstone of today formed from windblown sand dunes, a desert that covered most of Utah



Paleogeographic reconstruction courtesy of Ron Blakey