GS 15: Stratigraphy, environments, climates, and petroleum systems of the Triassic and Earliest Jurassic of the subtropics Pangea

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High-resolution Transect from the Tropics to the Temperate zone in Triassic Pangea

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Cyclostratigraphic and magnetostratigraphic correlation of rift basin strata allow correlation of individual ~20 ky lacustrine cycles across 36° of paleolatitude (pl) from the tropics through the subtropics and into the temperate latitudes. Using the Newark Basin Astronomically Calibrated Geomagnetic Time Scale (NBAGPTS) as a standard, we have examined an interval corresponding with polarity chrons E17n to E18n spanning ~2 m.y., correlative with the Sevetian Substage of the Norian Stage of the Late Triassic, in the Culpeper basin (14° N pl, Virginia, USA), the Newark basin (15° N pl, New Jersey, USA), the Argana basin (19° pl, Morocco), the Fundy basin (20° pl, Nova Scotia, Canada), the Bristol Channel basin (27° pl, Somerset, Great Britian), and the Jamesonland basin (41° pl, Jamesonland, Greenland). From south to north, facies change are: 1) alternating deepwater perennial lake and non-evaporite-bearing playa sequences (Culpeper); 2) deepwater perennial lake and evaporite-bearing playa (Newark); 3) shallow perennial lake and efflorescent salt crust playa (Argana and Fundy); 4) very shallow perennial lake and non-evaporite-bearing playa (Bristol Channel); and 5) shallow carbonate perennial lake and non-evaporite-bearing playa (Jamesonland). These facies transitions correspond to humid to semiarid, semiarid to arid, temperate to semiarid, humid temperate to semiarid climates. This high-resolution template, within its larget spatio-temporal context, allows us to distinguish between paleogeographic changes through zonal climate belts, from true climate change.