Environmental setting of human migrations in the circum-Pacific Region

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A new study by Kevin Pope of Geo Eco Arc Research and John Terrell of The Field Museum adds insight into the migration of anatomically modern humans out of Africa and into Asia less than 100,000 years before present (BP).

The comprehensive review of human genetic, environmental, and archaeological data from the circum-Pacific region supports the hypothesis, originally based largely on genetic evidence, that modern humans migrated into eastern Asia via a southern coastal route.

The expansion of modern human populations into the circum-Pacific region occurred in at least four pulses, in part controlled by climate and sea level changes in the Late Pleistocene and Holocene epochs. The initial “out of Africa” migration was thwarted by dramatic changes in both sea level and climate and extreme drought in the coastal zone.

A period of stable climate and sea level 45,000-40,000 years BP gave rise to the first major pulse of migration, when modern humans spread from India, throughout much of coastal southeast Asia, Australia, and Melanesia, extending northward to eastern Russia and Japan by 37,000 years BP.

The northward push of modern humans along the eastern coast of Asia stalled north of 43° N latitude, probably due to the inability of the populations to adjust to cold waters and tundra/steppe vegetation. The ensuing cold and dry Last Glacial period, ~33,000-16,000 year BP, once

again brought dramatic changes in sea level and climate, which caused abandonment of many coastal sites. After 16,000 years BP, climates began to warm, but sea level was still 100 m below modern levels, creating conditions amenable for a second pulse of human migration into North America across an ice-free coastal plain now covered by the Bering Sea.

The stabilization of climate and sea level in the early Holocene (8,000-6,000 years BP) supported the expansion of coastal wetlands, lagoons, and coral reefs, which in turn gave rise to a third pulse of coastal settlement, filling in most of the circum-Pacific region. A slight drop in sea level in the western Pacific in the mid-Holocene (~6,000-4,000 year BP), caused a reduction in productive coastal habitats, leading to a brief disruption in human subsistence along the then densely settled coast.

This disruption may have helped initiate the last major pulse of human migration in the circum-Pacific region, that of the migration to Oceania, which began about 3,500 years BP and culminated in the settlement of Hawaii and Easter Island by 2000-1000 years BP.

Source: Blackwell Publishing Ltd.