

SOME RATES OF CRUSTAL DEFORMATION, EROSION, AND DEPOSITION

ka = kiloannum = 1000 yr
1 mm/yr = 1 m/ka = 3.3 ft/ka

Crustal Deformation

isostatic rise of Scandinavia following deglaciation - current	10-11 mm/yr (33 - 36 ft/ka)
isostatic rise of Scandinavia following deglaciation - avg over last 10,000 yr	25 mm/yr (82 ft/ka)
isostatic subsidence of Netherlands	2 mm/yr (6.5 ft/ka)
isostatic rise of Hudson's Bay following deglaciation	17 mm/yr (56 ft/ka)
isostatic rise of Lake Superior following deglaciation	5 mm/yr (16 ft/ka)
isostatic uplift of Pleistocene Lake Bonneville shorelines	6 mm/yr (20 ft/ka)
isostatic subsidence of Lake Mead following filling	12 mm/yr (39 ft/ka)
uplifted marine terraces, California coast	about 2 mm/yr (6.5 ft/ka)
uplift of California Coast Range	7.5 mm/yr (25 ft/ka)
creep on San Andreas fault	10 - 20 mm/yr (33 -65 ft/ka)
sea-floor spreading	20 - 100 mm/yr (66 - 330 ft/ka)
Schumm's worldwide average rate of orogenic uplift	7.5 mm/yr (25 ft/ka)

Erosion (bedrock lowering rate)

incision of Grand Canyon	0.7 mm/yr (2.3 ft/ka)
Mississippi River basin	0.05 mm/yr (0.2 ft/ka)
Colorado River basin	0.06 mm/yr (0.2 ft/ka)
Eel River, California	1.2 mm/yr (about 4 ft/ka)
Kosi River, Himalayas	1 mm/yr (about 3 ft/ka)
Sierra Nevada, California	0.01 mm/yr (0.03 ft/ka)
Schumm's worldwide average maximum rate of erosion	1 mm/yr (3 ft/ka)
Schumm's worldwide average rate of erosion for basins > 1500 mi ² (3900 km ²)	0.008 mm/yr (0.25 ft/ka)

Deposition

Green River shales, Wyoming	0.09 mm/yr (0.3 ft/ka)
Mississippi delta -- last 10,000 yr	6 mm/yr (20 ft/ka)
San Joaquin Valley, California	5 mm/yr (16 ft/ka)
Southern California offshore basins (deep-sea sediments)	0.05 mm/yr (0.2 ft/ka)
Southern California nearshore basins (river contributions)	1.8 mm/yr (6 ft/ka)
North Atlantic	0.02 - 0.04 mm/yr (0.06 -0.13 ft/ka)
Deep ocean abyssal plains	0.001 - 0.01 mm/yr (0.003 - 0.03 ft/ka)

Summary:

Rates of uplift and crustal movement are on the order of 10 - 50 mm/yr (10 - 50 m/ka, or 30 - 160 ft/ka)

Rates of erosion are on the order of 0.05 - 1 mm/yr (0.05 - 1 m/ka, or 0.15 - 3 ft/ka)

Rates of deposition are on the order of 0.01 - 1 mm/yr (0.01 - 1 m/ka, or 0.03 - 3 ft/ka)

Note that average rates of crustal movement or deformation are typically 10 to 200 times greater than rates of erosion. Rates of deposition are similar to rates of erosion.