What globally at an average rate between

What then are we to predictabout the global future of mangroves in the face of climate change? There havebeen a number of general and local prognostications, especially in regard tosea level rise, but there have been few attempts at global prediction. Therehas been only one sophisticated attempt to forecast mangrove distributionsunder climate change. Using several mangrove databases for 30 species across 8genera, Record et al used the BIOMOD model to make predictions of mangrovespecies and community distributions under a range of sea level rise and globalclimate scenarios up to the year 2080. The model runs came up with two clearpredictions: some species will continue migrating poleward but experience a declinein available space; and Central America and the Caribbean will lose morespecies than other parts of the world.

The latter prediction is in agreementwith the work of Polidoro et al in which extinction risk of threatened specieswas assessed and the main geographical area of concern was found to be theAtlantic and Pacific coasts of Central America. The recentclimatological forecasts by the Intergovernmental Panel on Climate Change(IPCC) for until the end of this century predict that globally sea surfacetemperatures will rise by 1–3 °C, oceanic pH will decline by 0. 07–0. 31, and mean atmospheric CO_2concentrations will increase to441 ppm (from 391 ppm in 2011). Regional differences (Table 1) will occur for some parameters such as sea level, which will continue to rise globally at an average rate between 1.

8 and2. 4 mm year? 1; precipitation will increaseand decrease in some regions such that arid areas will become more arid and thewet tropics will become wetter; and salinity will change in tandem with changesin

precipitation. Considering these climatic predictions and the known andlikely responses of mangroves to changes in temperature, salinity, sea levelrise, etc., I offer some predictions:·   Prediction 1 (redlines): Mangrove forests along arid coasts will decline as salinities increase, freshwater becomes most scarce, and critical temperature thresholds are reachedmore frequently (e. g., NW Australia, Pakistan, Arabian Peninsula, both Mexicocoasts).·   Prediction 2(orange lines): Mangrove forests will decline as sediment yield declines, salinity increases, and sea level rises in tropical river deltas subject tosubsidence intervals (e. g., the Sundarbans; the Mekong, Zaire, Fly Rivers).·   Prediction 3(purple lines): Mangrove forests will decline as sea level rises and there islittle or no upland space to colonize (e. g., low islands of Oceania, manyCaribbean islands).·   Prediction 4(blue lines): Mangroves forests will continue to expand their latitudinal rangeas temperature and atmospheric CO_2 concentrations increase (New Zealand, USA, Australia, China).