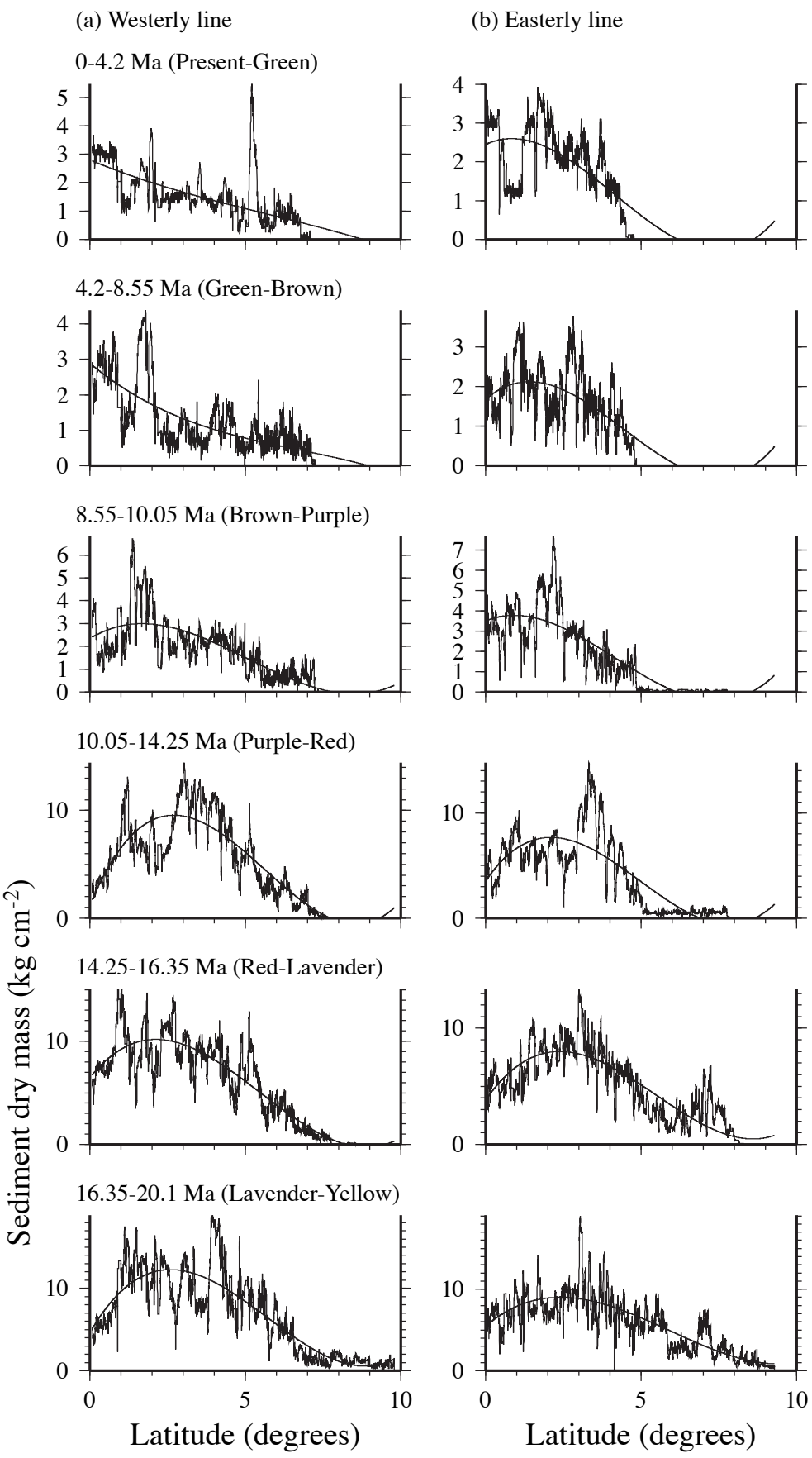

Figure DR1. Seismically derived sediment dry bulk mass per unit seafloor area for different time periods. Characteristic reflectors identified by Mayer et al. (1986) were mapped along the two seismic lines in Figure 1 and seismic two-way time was converted to interval mass using physical property data from DSDP Leg 85 drill sites (Mitchell et al., 2003). The smooth curve is a fourth-order polynomial fitted to the data by least squares (in practice a Chebychev polynomial (Wessel and Smith, 1991)). The annotation colors Green etc follow previous reflector nomenclature (Mayer et al., 1986).

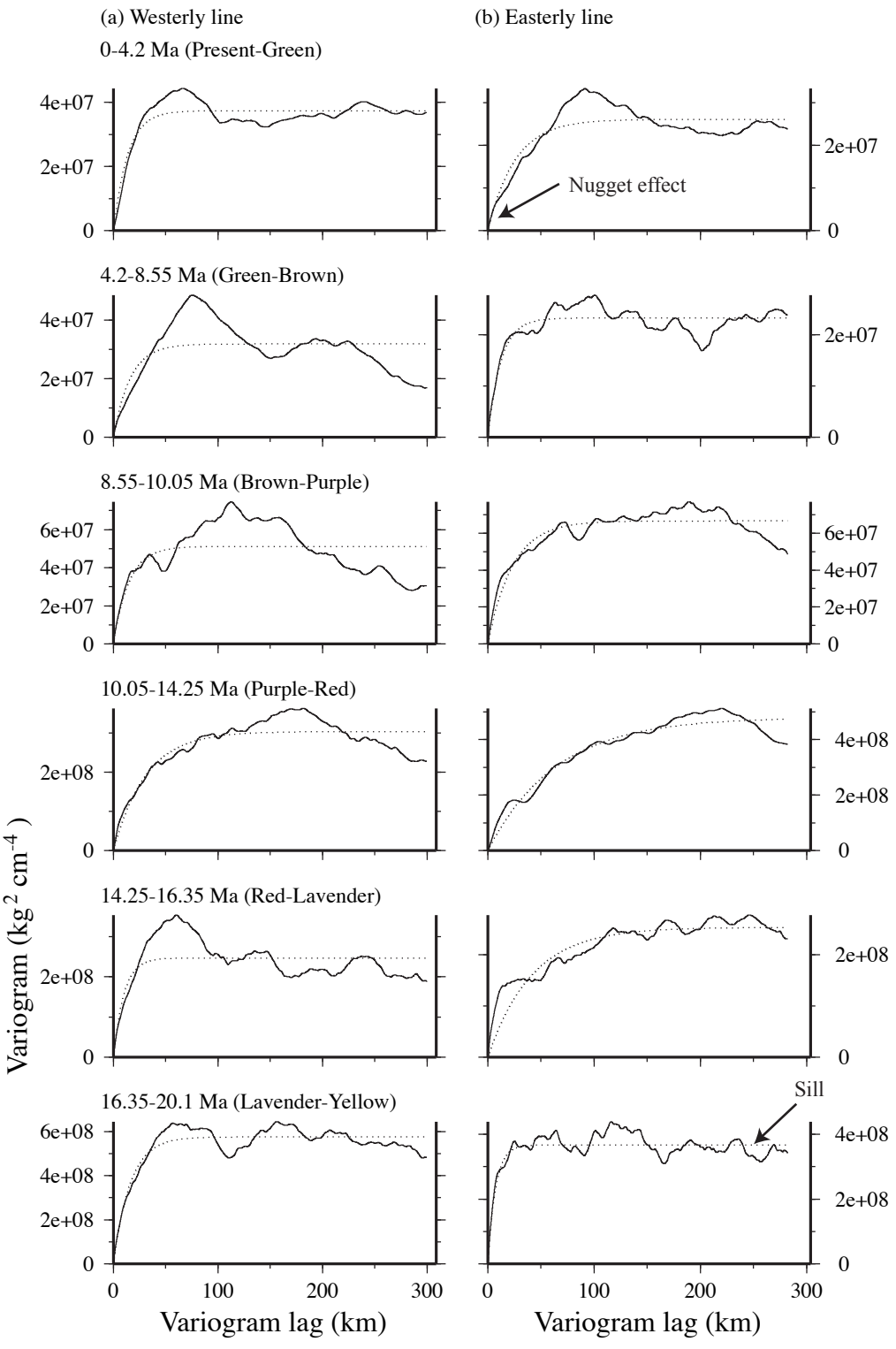

Figure DR2. Residual semi-variograms of the data in Figure DR1. The polynomials shown in Figure DR1 were subtracted from the data to remove long-wavelength trends and the semi-variograms were then computed from the residuals for the periods shown using standard techniques (Davis, 2002). The dotted curves are simple exponential models fitted to the data by least squares to quantify the range of variability and sill height. Some variograms reveal a small 'nugget effect' due to short-wavelength uncorrelated noise, probably due to interpretation precision, but the variance represented by this effect is typically less than 10-20% of the sill height representing the data variance. A mean value of the nugget effect was computed where it is clearly developed in (a) Green-Brown, Purple-Red and Red-Lavender and in (b) for Present-Green and Green-Brown. It suggests a mean noise variance of $2.86X10^7$ kg^2 m^{-4} or σ=5300 kg m^{-2}.

A nominal 2σ uncertainty for the smoothed data in Figure 2 (0.08 kg cm^{-2}) can be calculated by dividing 2σ=1.06 kg cm^{-2} by $\sqrt{177}$, where 177 represents the number of independent seismic interpretations of interval thickness encompassed by the 33 km effective scale of the smoothing filter (the stacked traces represent a distance traveled of 50 m but groups of four traces can have similar interpreted seismic two-way time so effective sampling interval is 200 m). For a more conservative estimate, we note that the nugget effect spans an average lag of 5.9 km. A maximum 2σ uncertainty of the filtered data is then given by dividing 2σ=1.06 kg cm^{-2} by $\sqrt{(33 \text{ km}/5.9 \text{ km})}$, i.e. 0.45 kg cm^{-2}. This representative and conservative uncertainty is reproduced by the uncertainty bars in Figure 2.