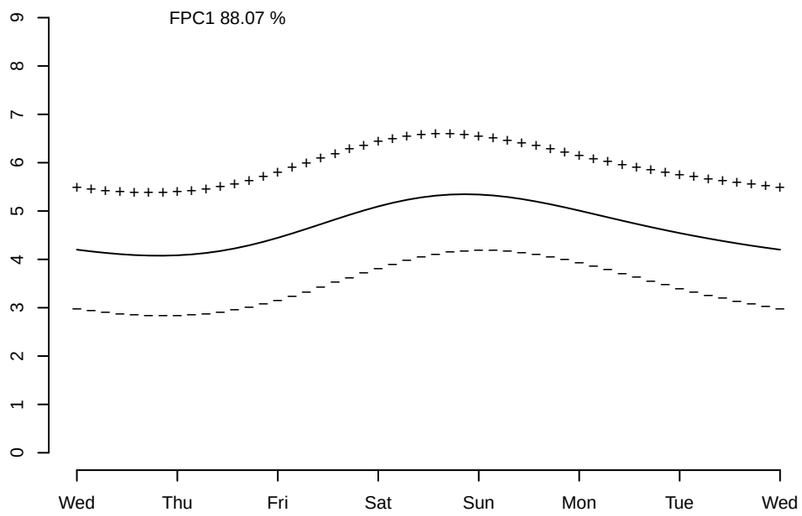
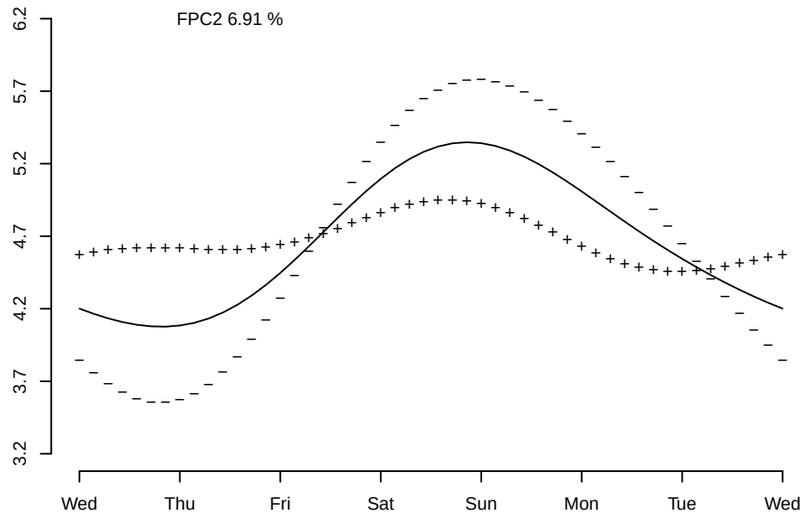
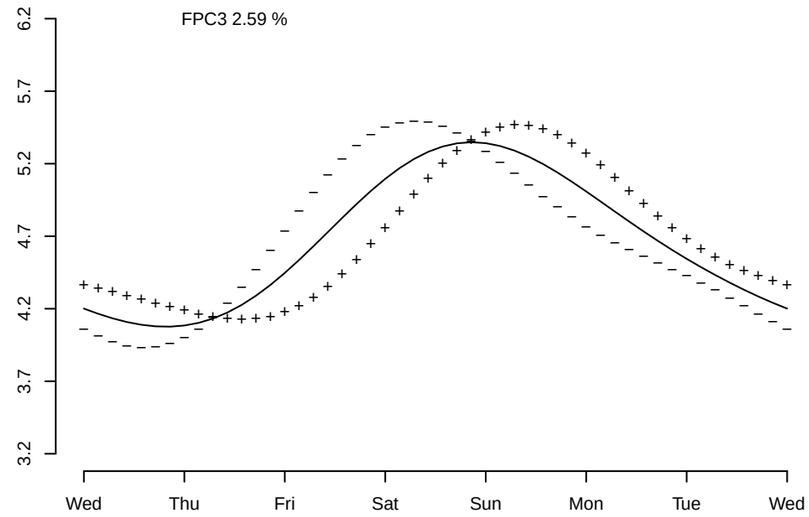
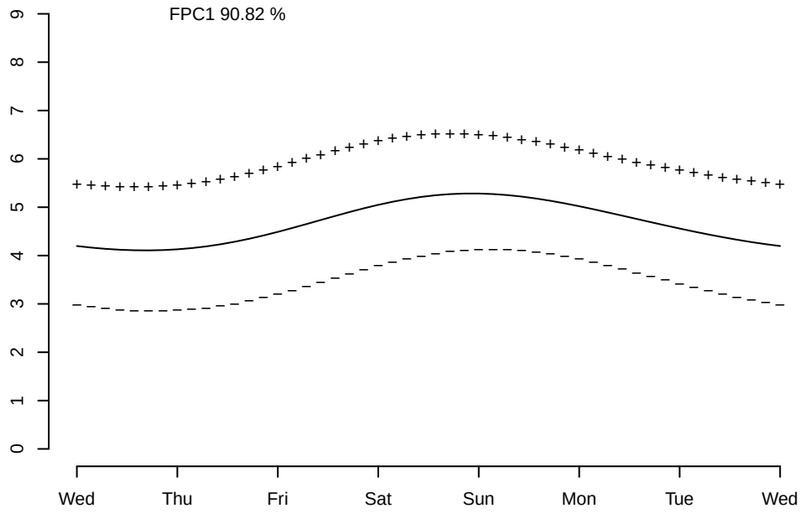
(A) Functional principal component analysis using Fourier basis functions with no smoothing

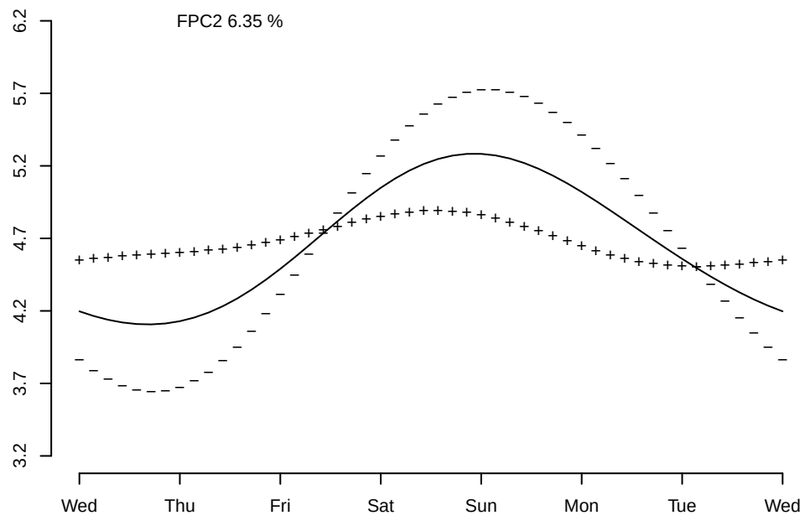


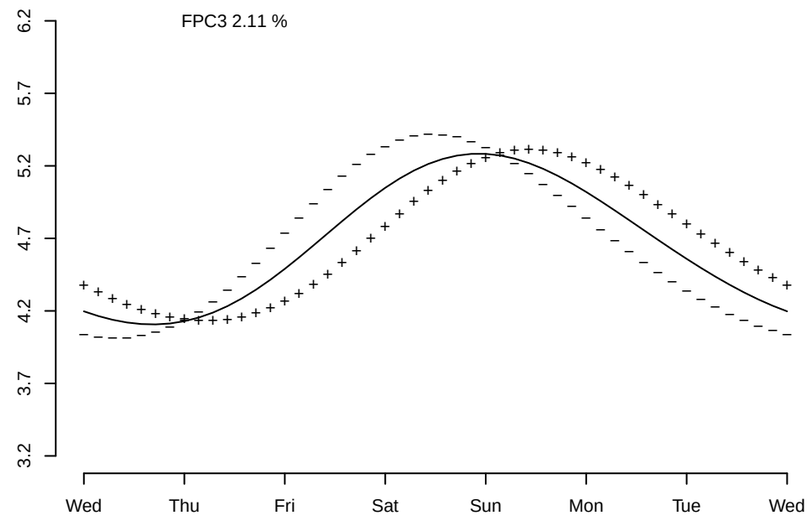




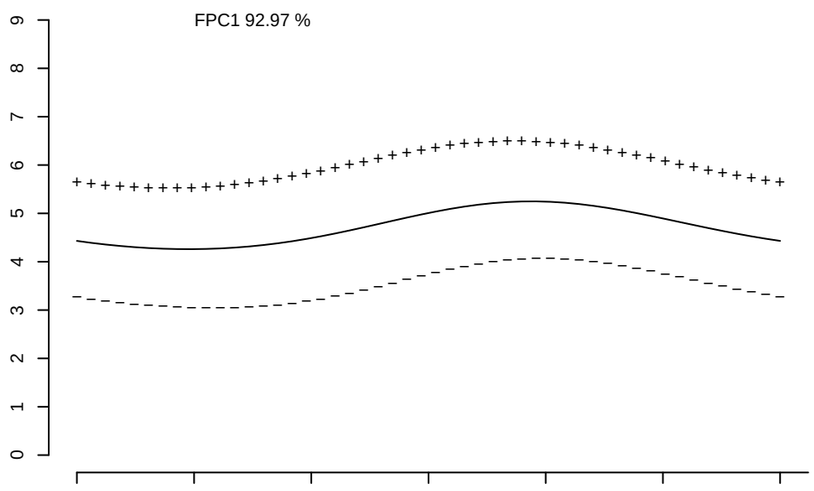
(B) Functional principal component analysis using Fourier basis functions with common−optimal smoothing

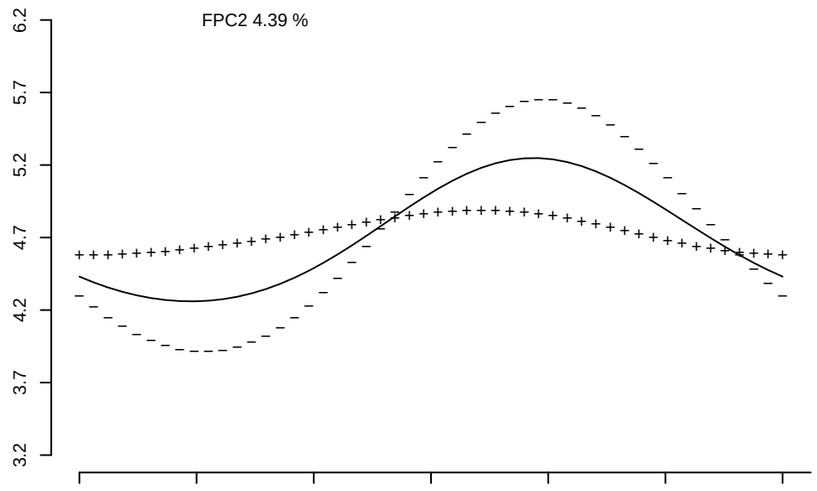


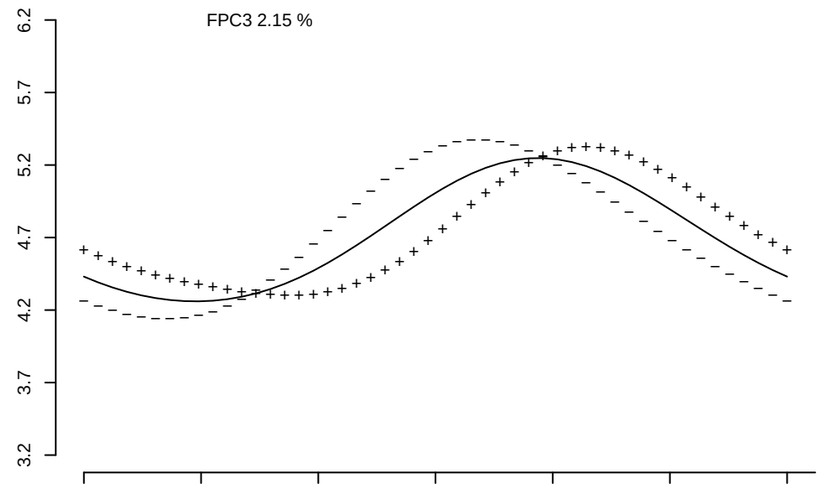




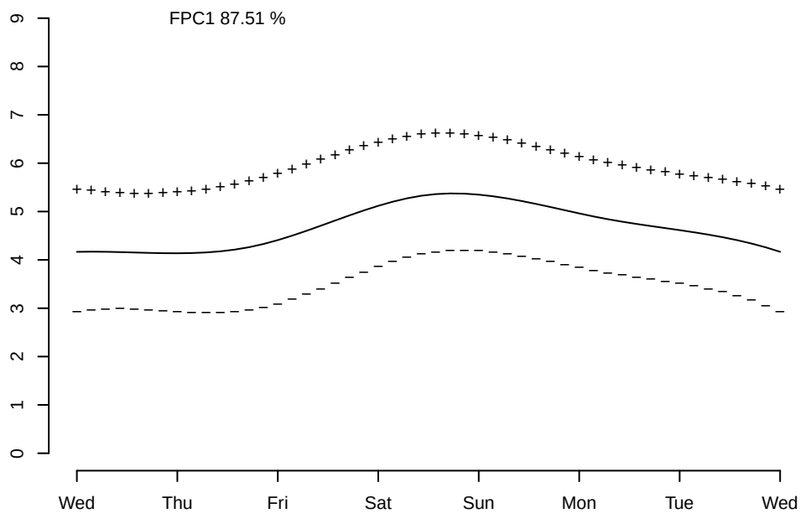
(C) Functional principal component analysis using Fourier basis functions with individual−optimal smoothing

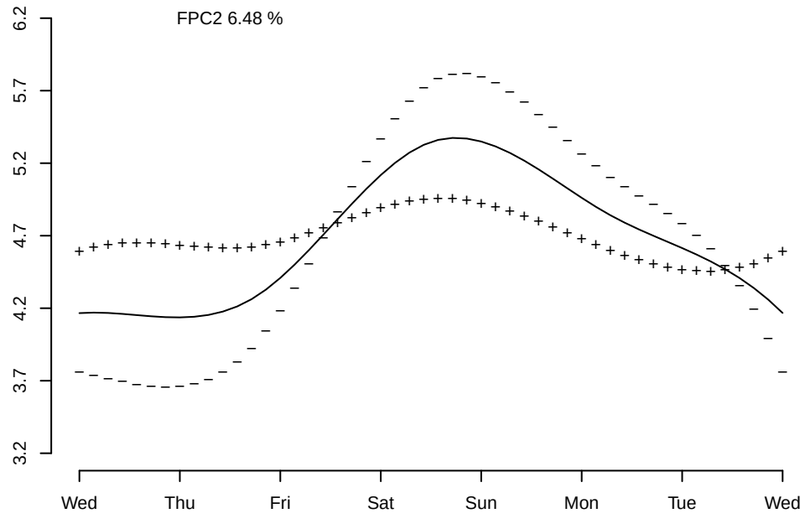


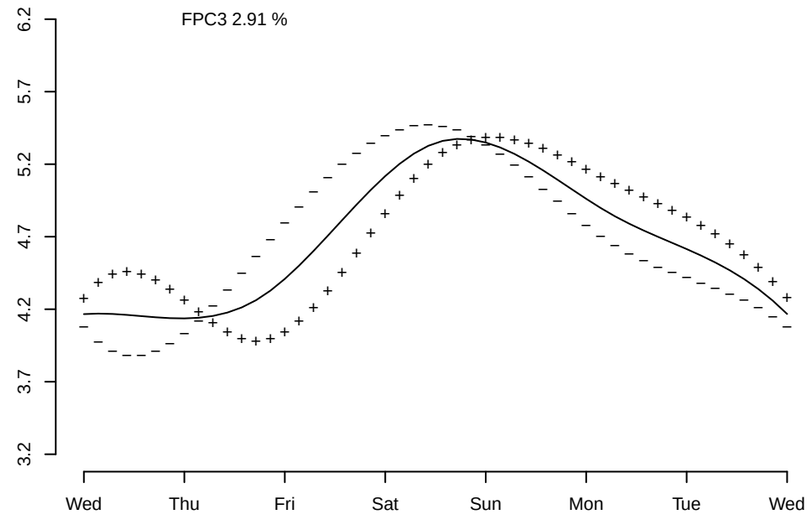




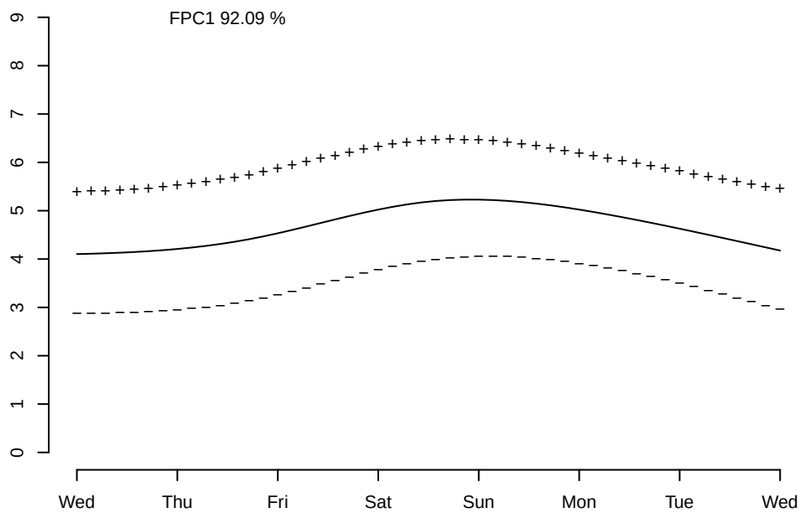
(D) Functional principal component analysis using B−spline basis functions with no smoothing

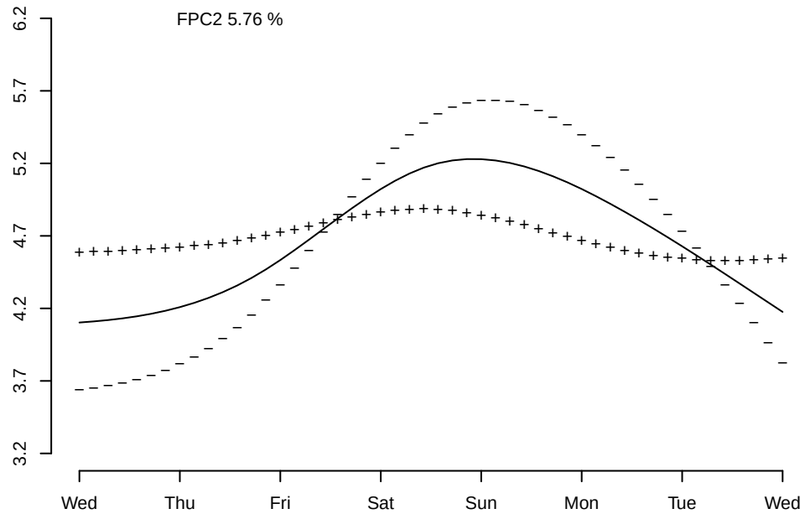


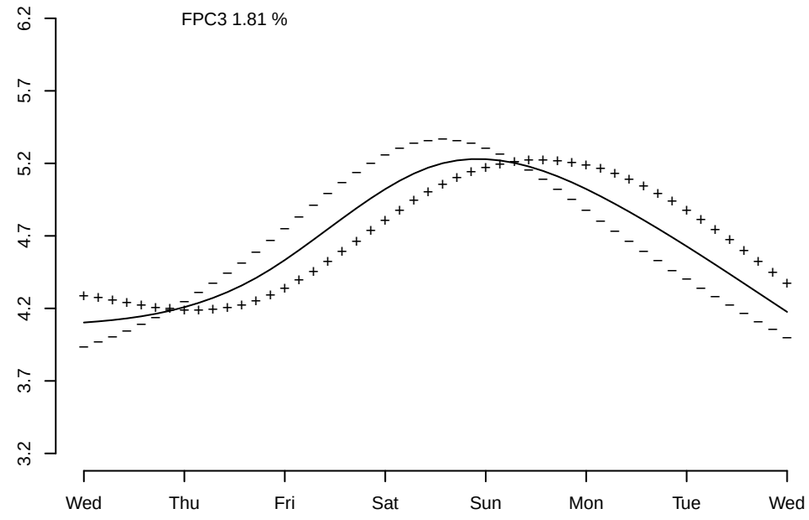




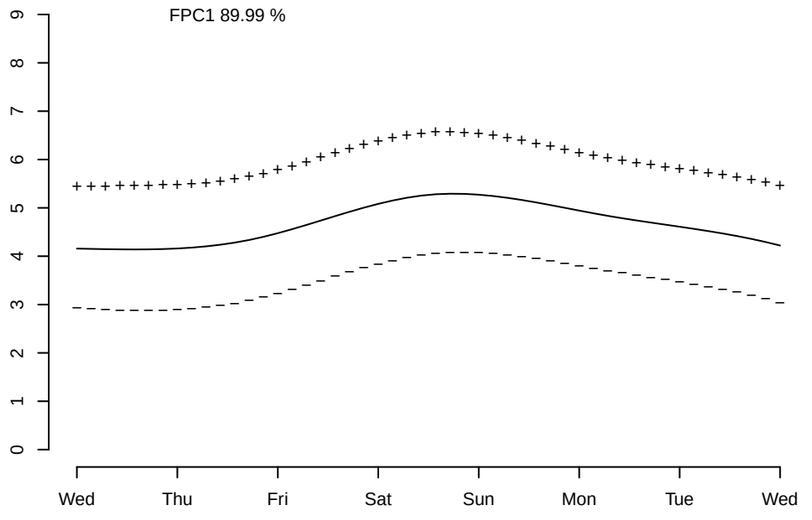
(E) Functional principal component analysis using B−spline basis functions with common−optimal smoothing

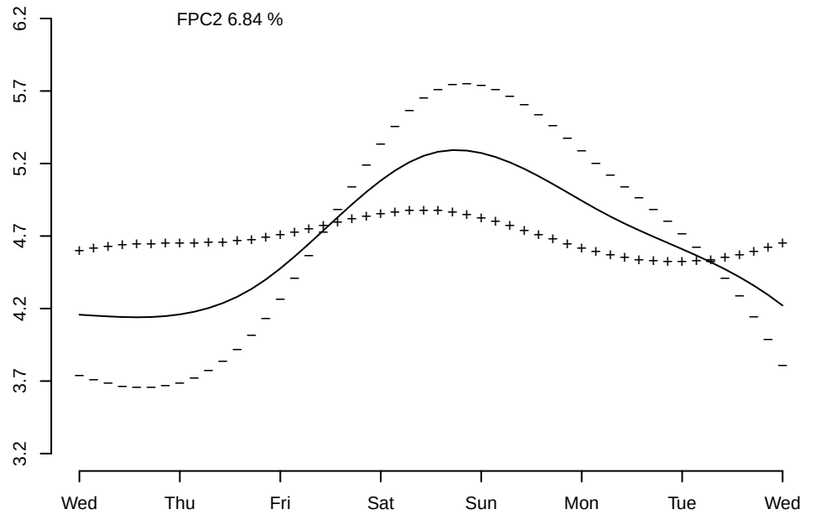


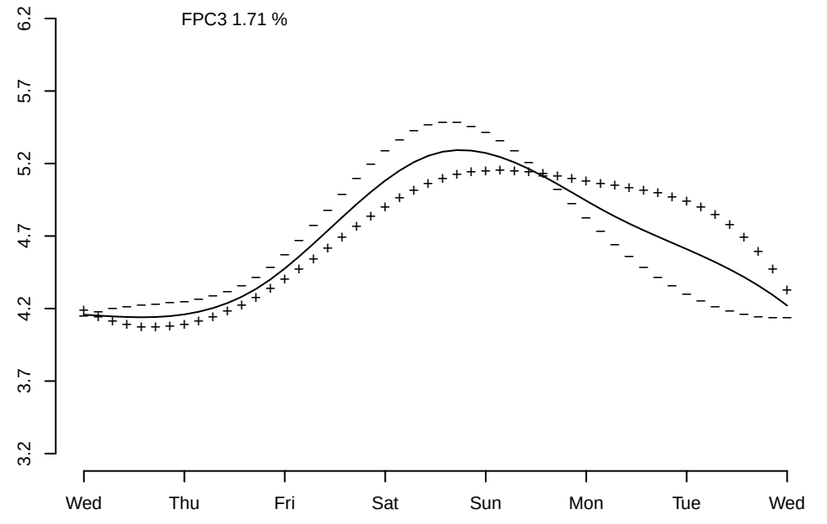




(F) Functional principal component analysis using B−spline basis functions with individual−optimal smoothing







***concentration values <LOQ replaced by a random draw from a uniform distribution on the interval [0, LOQ]**