

Supplementary Material A

Runoff was estimated based on a gridded precipitation raster (Hijmans et al. 2017), and an annual runoff coefficient c [dimensionless]. The latter in turn shows a strong empirical relationship to annual precipitation, approximating a Monod or saturation function (Eq. 1):

$$c = K_{\max} \times (P/(K_s + P)), \quad (1)$$

where the asymptote $K_{\max} = 1$, half saturation $K_s = 500$ [mm/y], and P is the mean annual precipitation [mm/y] for the respective pIFW. This model is based on mass balance estimates from 52 basins ranging from 40 to 55 °S, from the time period between 1950 and 1980, data summarized in: **Ministerio Obras Públicas 1979. Balance Hídrica de Chile.**

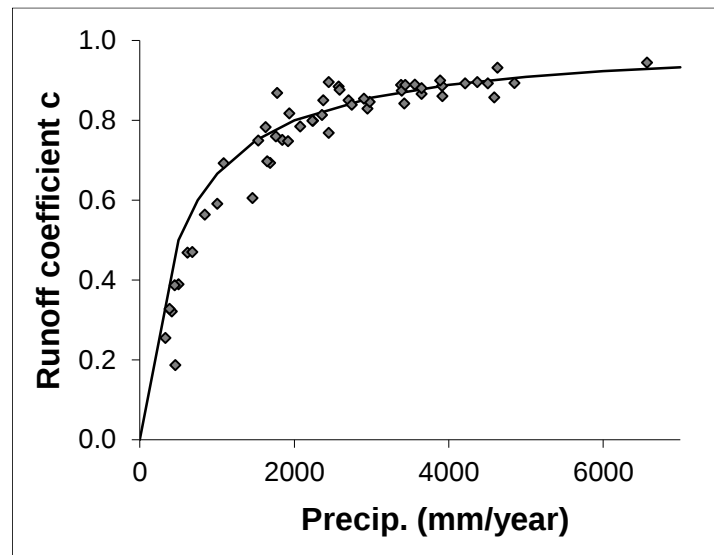


Figure S1. Relationship between mean basin precipitation and annual runoff coefficient for 52 stations in southern Chile. Observed stations (symbols) correspond to a Monod function (line) with $K_{\max} = 1$ and $K_s = 500$ mm/y.