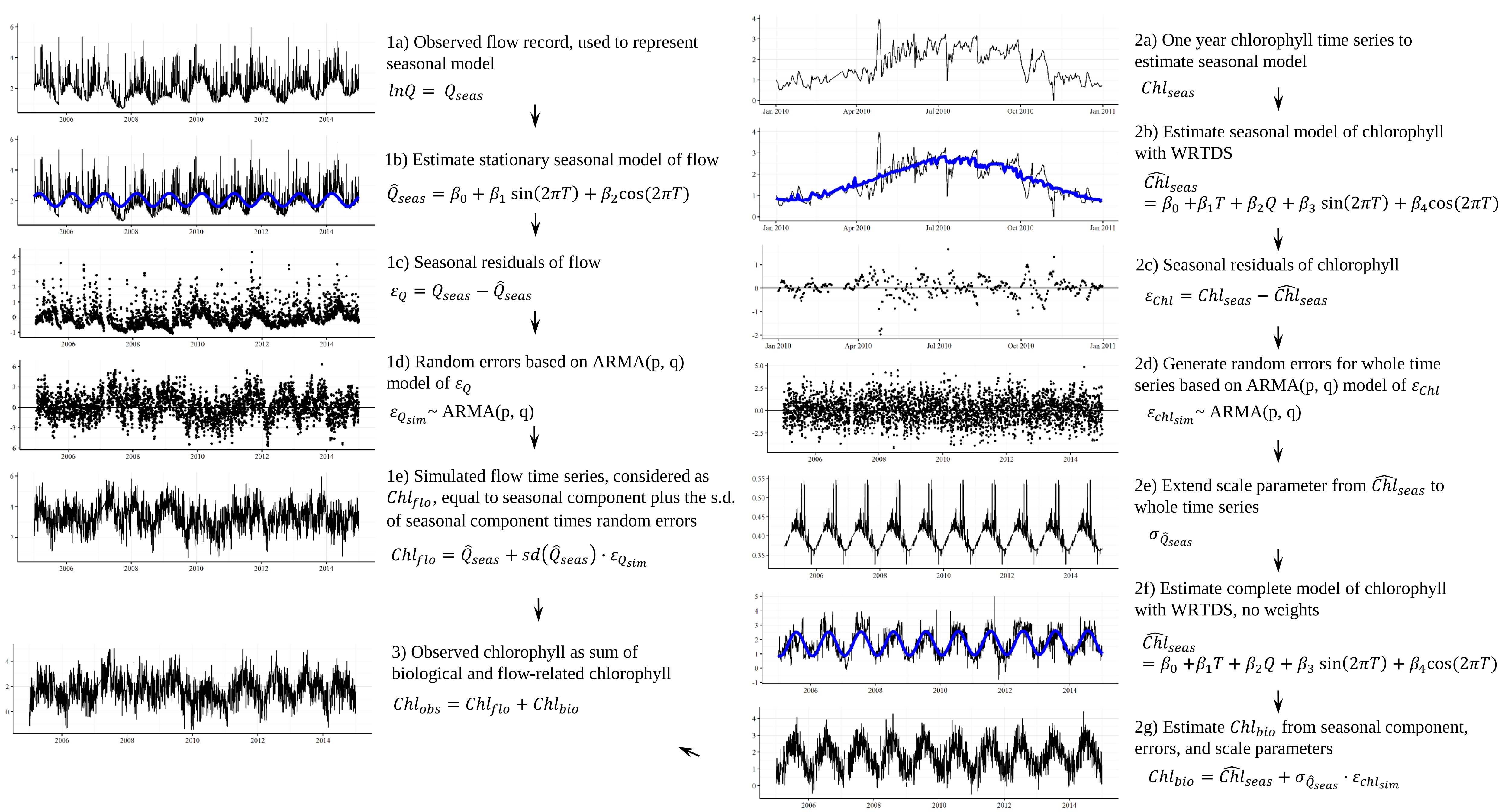

1a) Observed flow record, used to represent seasonal model
$lnQ = Q_{seas}$
1b) Estimate stationary seasonal model of flow
$\hat{Q}_{seas} = \beta_0 + \beta_1 \sin(2\pi T) + \beta_2 \cos(2\pi T)$
1c) Seasonal residuals of flow
$\varepsilon_Q = Q_{seas} - \hat{Q}_{seas}$
1d) Random errors based on ARMA(p, q) model of ε_Q
$\varepsilon_{Q_{sim}} \sim$ ARMA(p, q)
1e) Simulated flow time series, considered as Chl_{flo}, equal to seasonal component plus the s.d. of seasonal component times random errors
$Chl_{flo} = \hat{Q}_{seas} + sd(\hat{Q}_{seas}) \cdot \varepsilon_{Q_{sim}}$
3) Observed chlorophyll as sum of biological and flow-related chlorophyll
$Chl_{obs} = Chl_{flo} + Chl_{bio}$
2a) One year chlorophyll time series to estimate seasonal model
Chl_{seas}
2b) Estimate seasonal model of chlorophyll with WRTDS
$\widehat{Chl}_{seas} = \beta_0 + \beta_1 T + \beta_2 Q + \beta_3 \sin(2\pi T) + \beta_4 \cos(2\pi T)$
2c) Seasonal residuals of chlorophyll
$\varepsilon_{Chl} = Chl_{seas} - \widehat{Chl}_{seas}$
2d) Generate random errors for whole time series based on ARMA(p, q) model of ε_{Chl}
$\varepsilon_{chl_{sim}} \sim$ ARMA(p, q)
2e) Extend scale parameter from $\widehat{Chl}_{seas}$ to whole time series
$\sigma_{\hat{Q}_{seas}}$
2f) Estimate complete model of chlorophyll with WRTDS, no weights
$\widehat{Chl}_{seas} = \beta_0 + \beta_1 T + \beta_2 Q + \beta_3 \sin(2\pi T) + \beta_4 \cos(2\pi T)$
2g) Estimate Chl_{bio} from seasonal component, errors, and scale parameters
$Chl_{bio} = \widehat{Chl}_{seas} + \sigma_{\hat{Q}_{seas}} \cdot \varepsilon_{chl_{sim}}$