Abstract: The motivation for this work comes from the need to forecast quantiles (and other summary statistics) of daily rainfall and temperature over each month in a year, several years into the future for use in pasture production models. Suppose quantile estimates of variables $Z_1, Z_2, \ldots$ are available, and a vector of covariates $u$. I slightly generalise the standard state space model in order to model and forecasts these quantiles conditional on the covariate $u$. In this model the state (or latent) variables represent transformed values of the true quantiles of $Z_1, Z_2, \ldots$. I will describe how the EM algorithm together with the Kalman filter (and a reverse version of the filter) may be used to produce maximum likelihood estimates of the parameters in the model and of the state variable parameters. I will then illustrate useful features of the model by applying it to rainfall and temperature data from several locations in Australia.