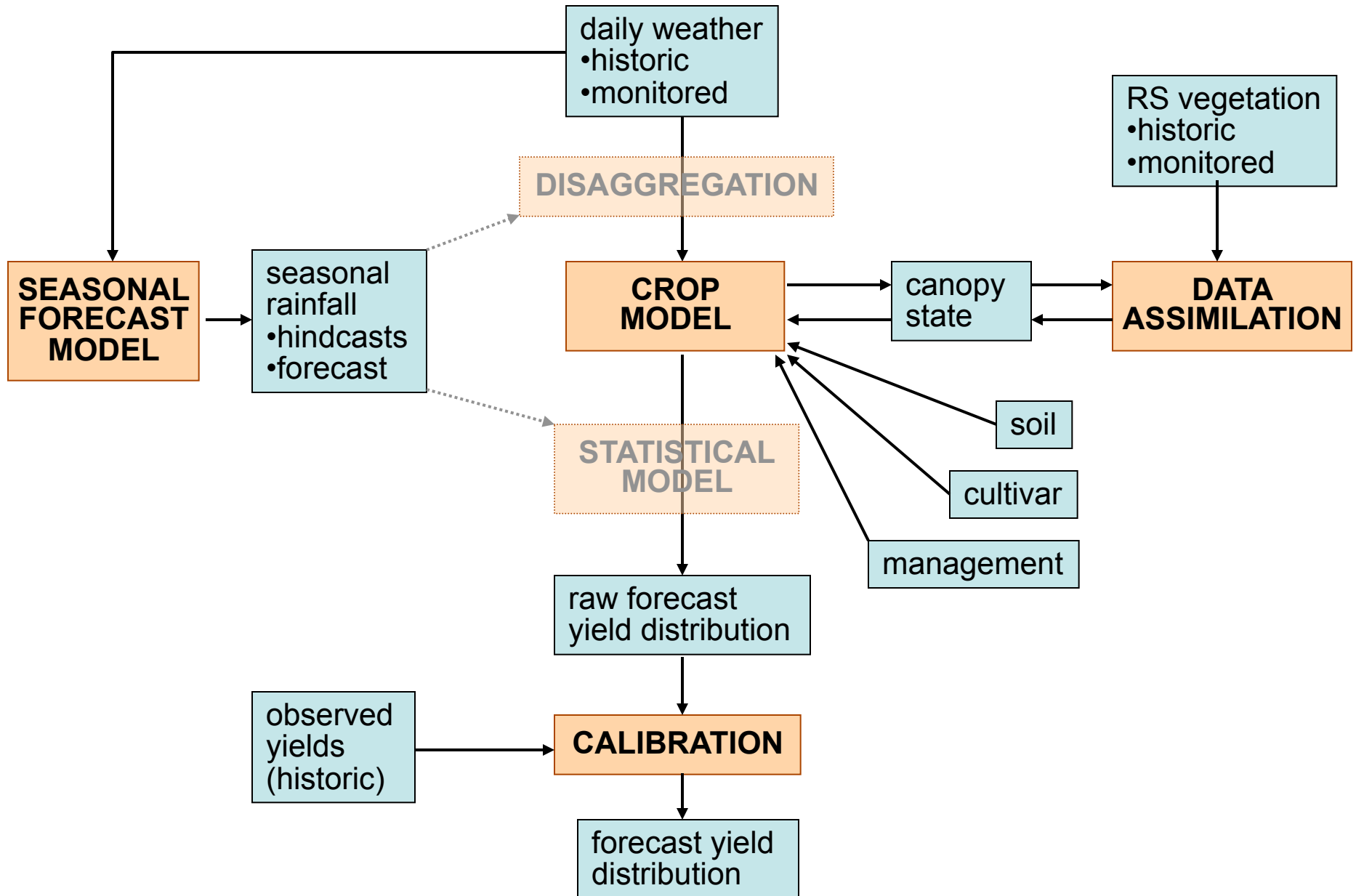


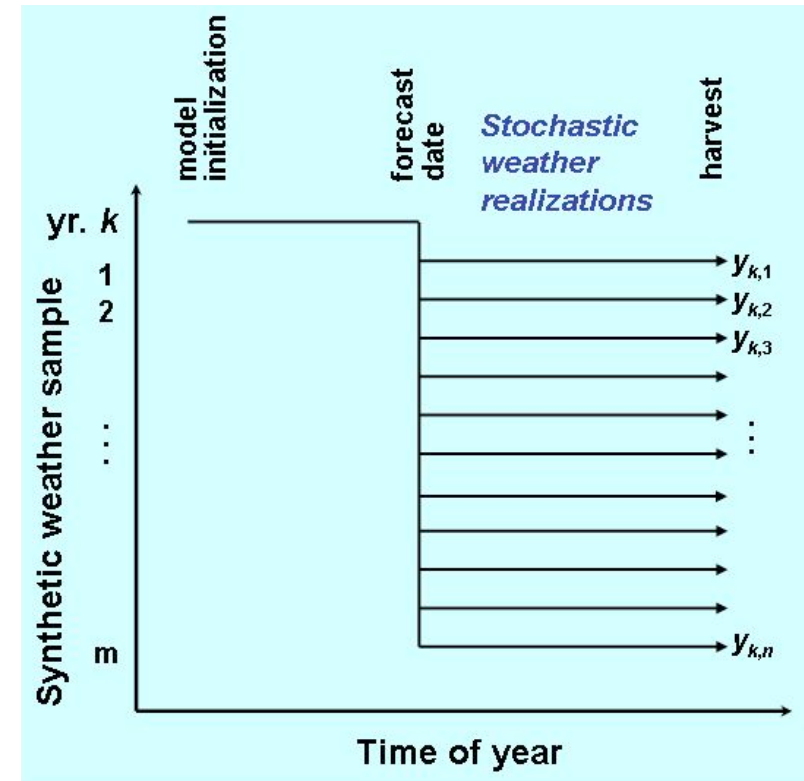
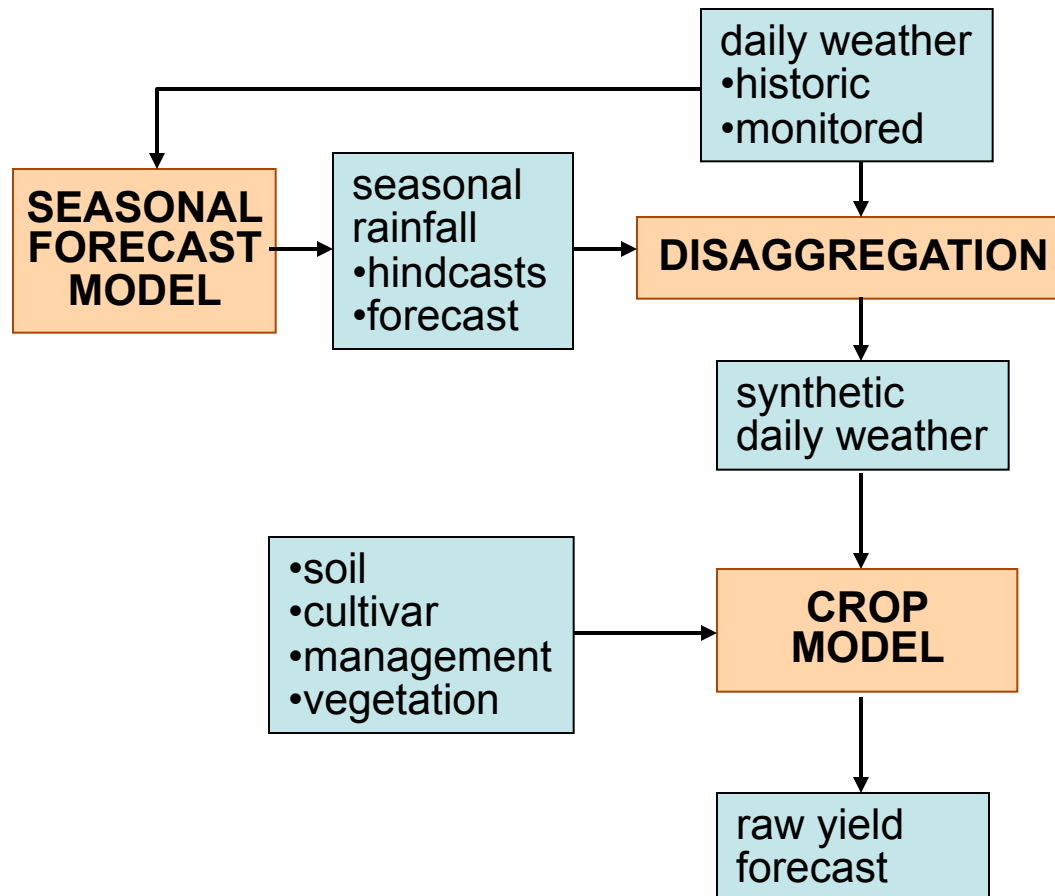
Crop Yield Forecasting

General Overview, Single Spatial Unit



Crop Yield Forecasting

Detail: Disaggregation of Climate Forecasts (or daily climate model output)



Hansen, J.W., Ines, A.V.M., 2005. Stochastic disaggregation of monthly rainfall data for crop simulation studies. *Agricultural and Forest Meteorology* 131:233-246.

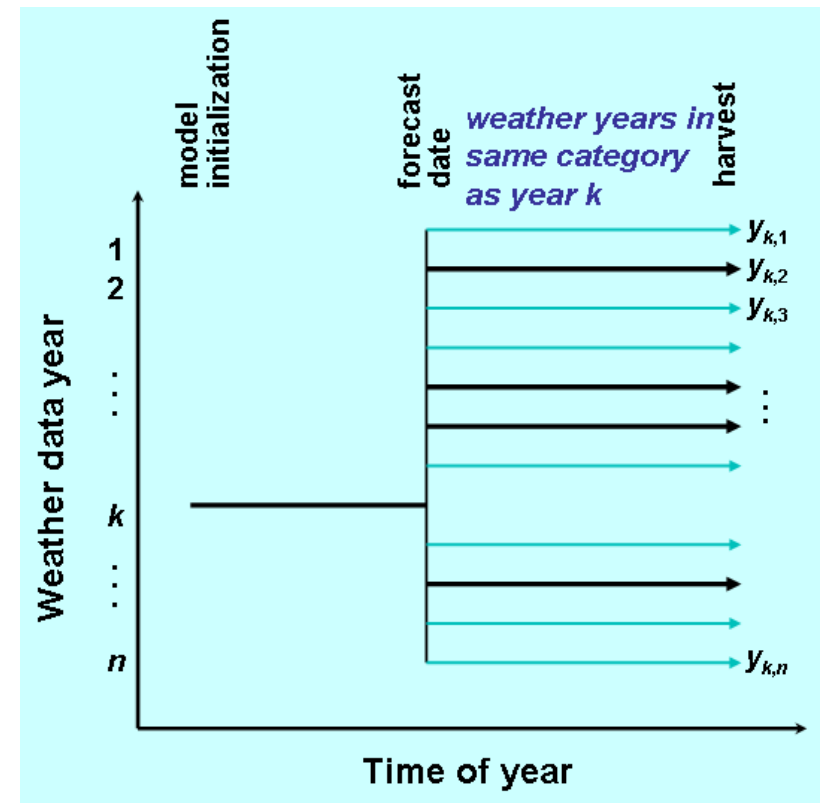
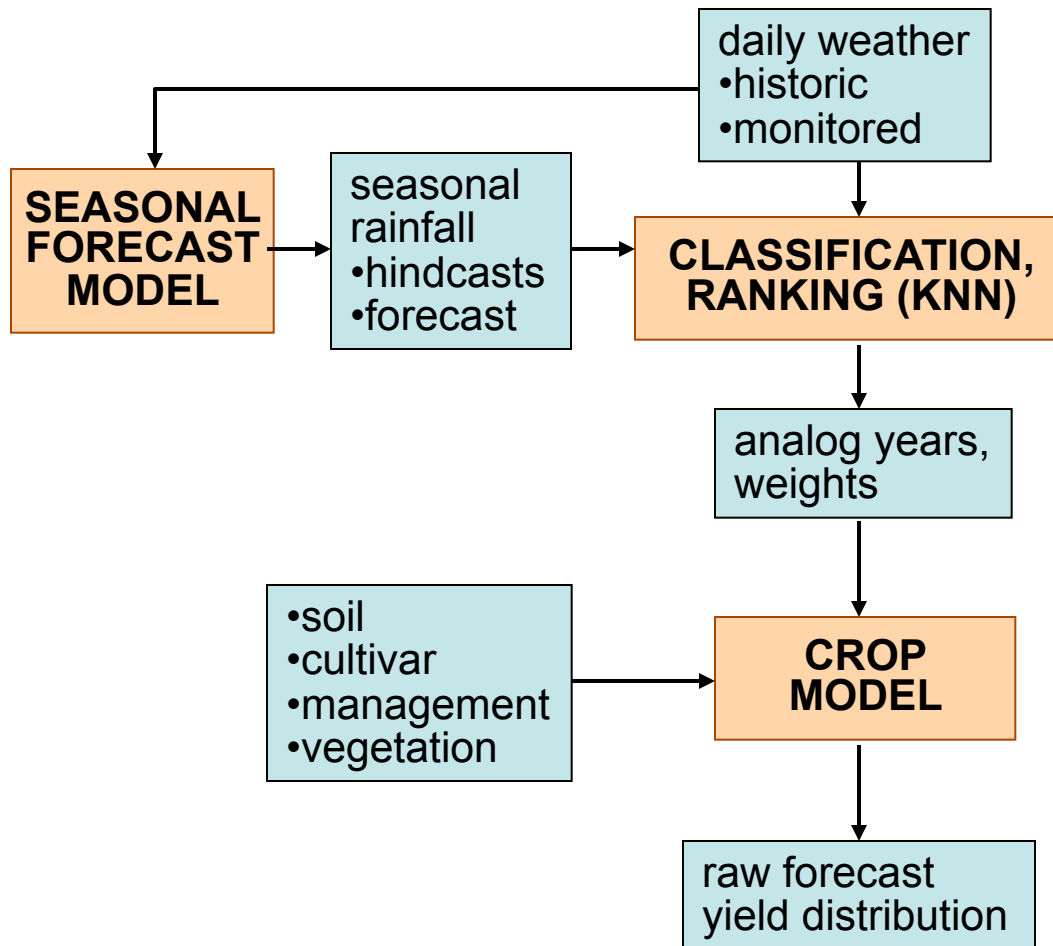
Robertson, A.W., Ines, A.V.M., Hansen, J.W., 2007. Downscaling of seasonal precipitation for crop simulation. *Journal of Applied Meteorology and Climatology* 46:677-693.

Ines, A.V.M., Hansen, J.W., 2006. Bias correction of daily GCM rainfall for crop simulation studies. *Agricultural and Forest Meteorology* 138:44-53.

Mishra, A., Hansen, J.W., Dingkuhn, M., Baron, C., Traoré, S.B., Ndiaye, O., Ward, M.N., 2008. Sorghum yield prediction from seasonal rainfall forecasts in Burkina Faso. *Agricultural and Forest Meteorology* 148:1798-1814.

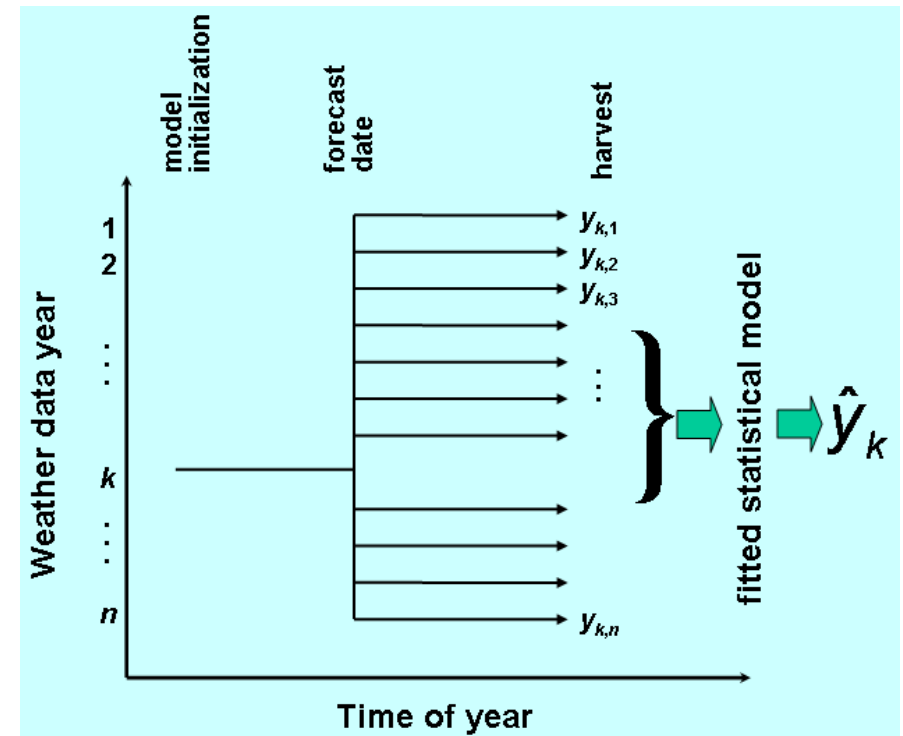
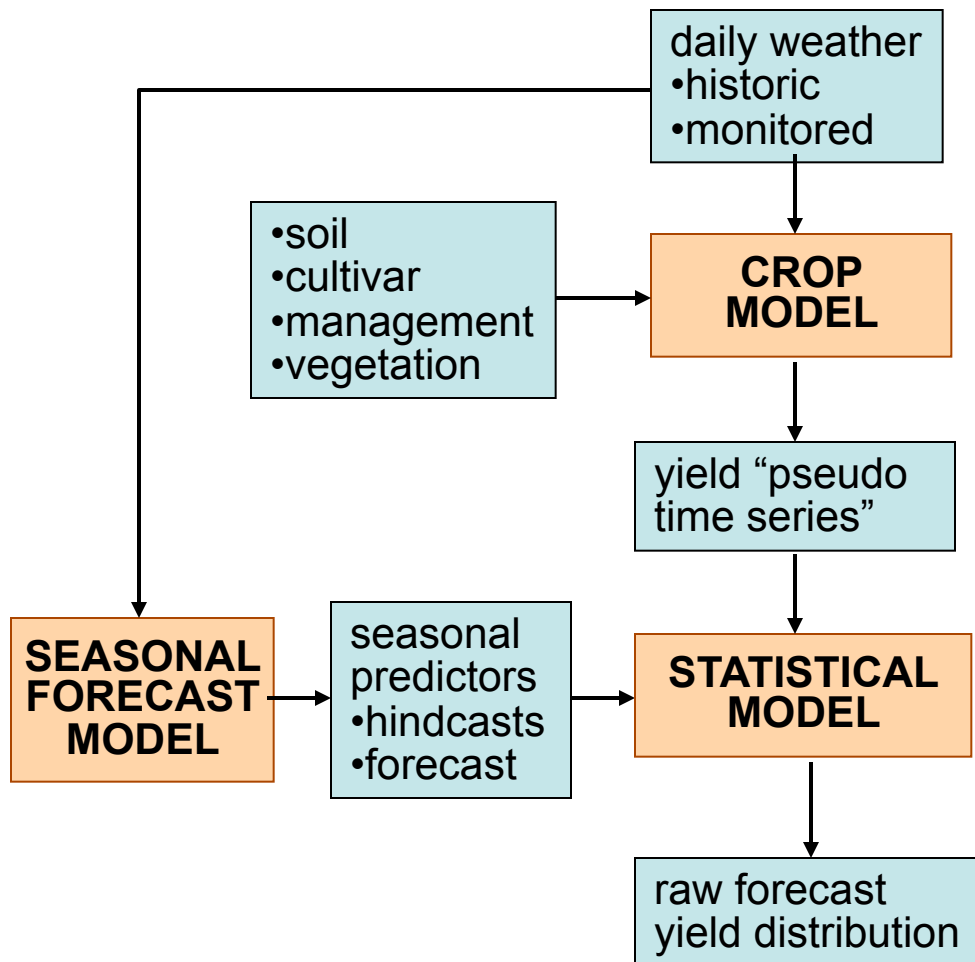
Crop Yield Forecasting

Detail: Analog Years (including KNN or other probability-weighted)



Crop Yield Forecasting

Detail: Statistical Function of Seasonal Forecasts



Hansen, J.W., Potgieter, A., Tippet, M., 2004. Using a general circulation model to forecast regional wheat yields in Northeast Australia. *Agricultural and Forest Meteorology* 127:77-92.

Mishra, A., Hansen, J.W., Dingkuhn, M., Baron, C., Traoré, S.B., Ndiaye, O., Ward, M.N., 2008. Sorghum yield prediction from seasonal rainfall forecasts in Burkina Faso. *Agricultural and Forest Meteorology* 148:1798-1814.

GIS Layers

- Spatial inputs:
 - Soil properties, by layer
 - Cultivar
 - Management
 - Areas cultivated
 - Daily weather series
 - Vegetation (NDVI or FAPAR) time series
- Outputs:
 - Simulated variables: yield (absolute and relative), biomass, harvest index, irrigation requirements, etc.
 - Probabilistic information: CV, specified percentiles, probability of exceeding median or other thresholds, model error statistics