

# COHYST 2010

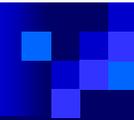
## A Total Water Budget Approach to Integrated Water Management

**Greater Platte River Basins Symposium**

**October 7, 2010**

**Doug Hallum, P.G., Integrated Water Management Coordinator**

**Nebraska Department of Natural Resources**

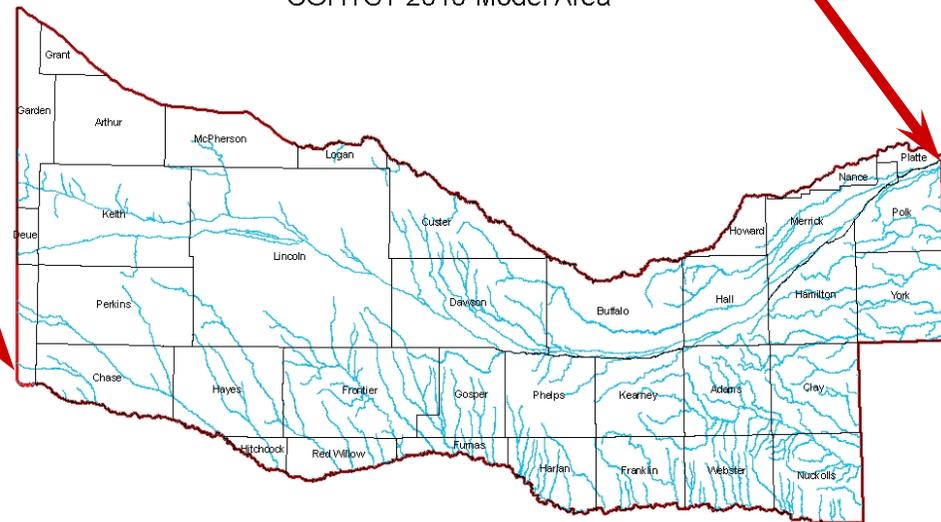


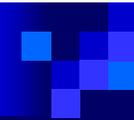
# Sponsors

- Central Platte NRD
- Tri-Basin NRD
- Twin Platte NRD
- Central Nebraska Public Power & Irrigation District
- Nebraska Public Power District
- Nebraska Game & Parks Commission
- Nebraska Department of Natural Resources

# COOPERATIVE HYDROLOGY STUDY

COHYST 2010 Model Area

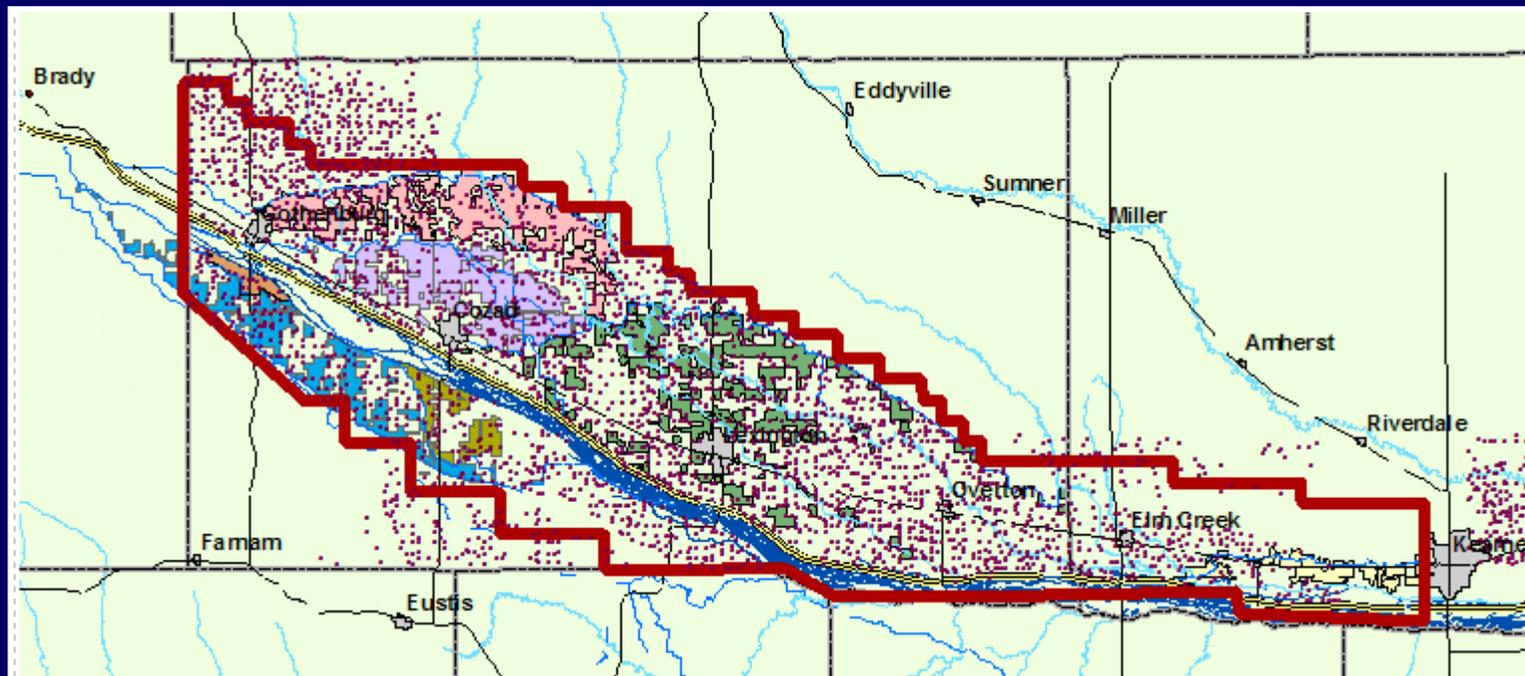


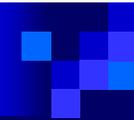


# The challenge...

- New management objectives, but
- Similar to an existing work

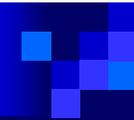
# The CWM Project





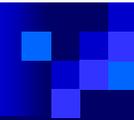
# The solution...

- Join forces and develop one project to do the work (COHYST 2010)



# Management Objectives

- Model must take into account:
  - Complete water budget
  - Temporal variability
  - Transient flow targets
  - Consumptive use
- Tracking and Accounting
- Incorporate surface water component
- Capable of management alternatives analysis

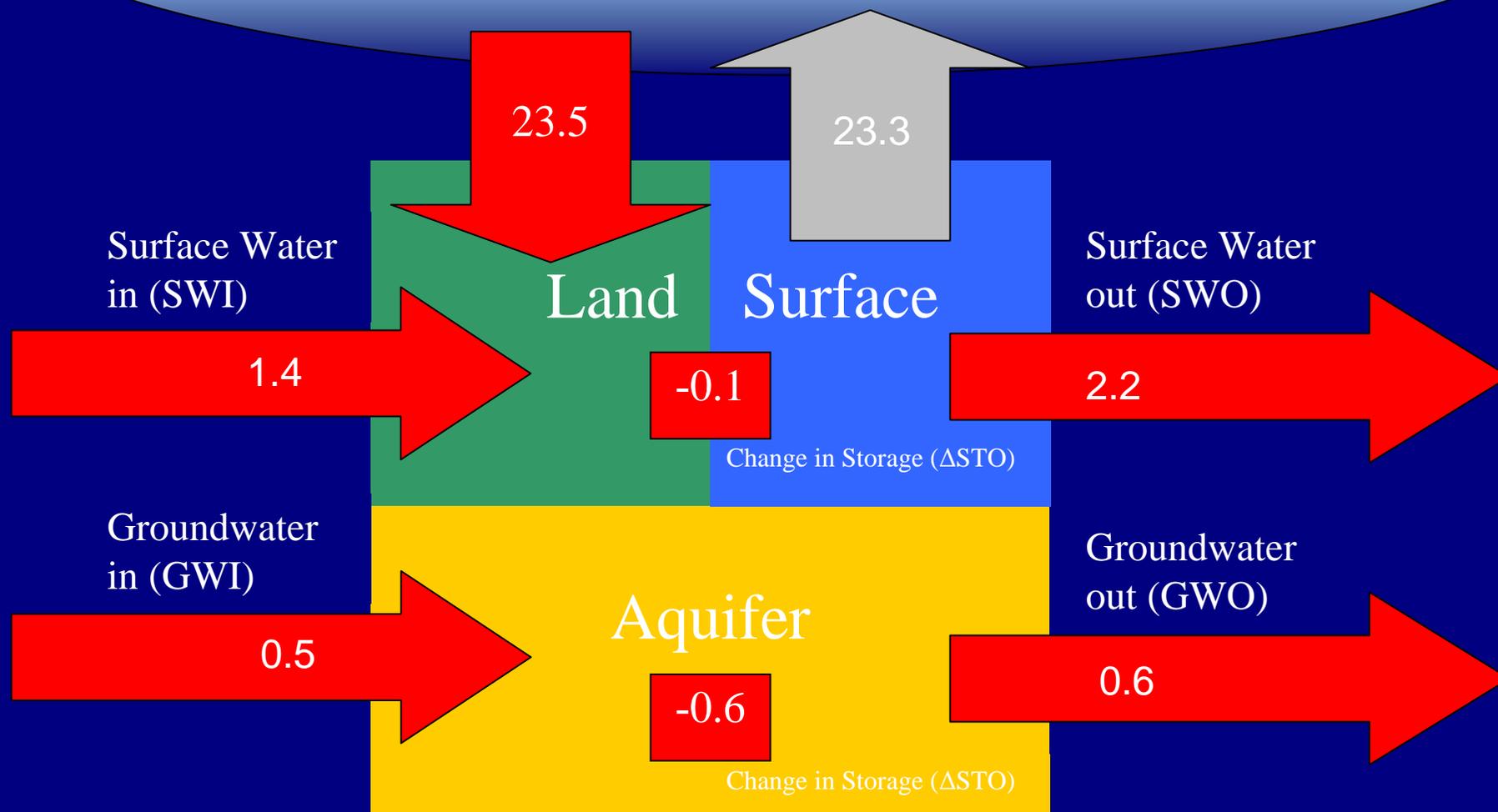


# Phases

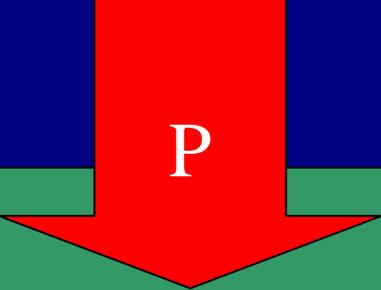
- Phase I: Water Budget
- Phase II: Develop a suite of modeling tools
- Phase III: Develop applied tools

# Atmosphere

Precipitation (P) Evapotranspiration (ET)

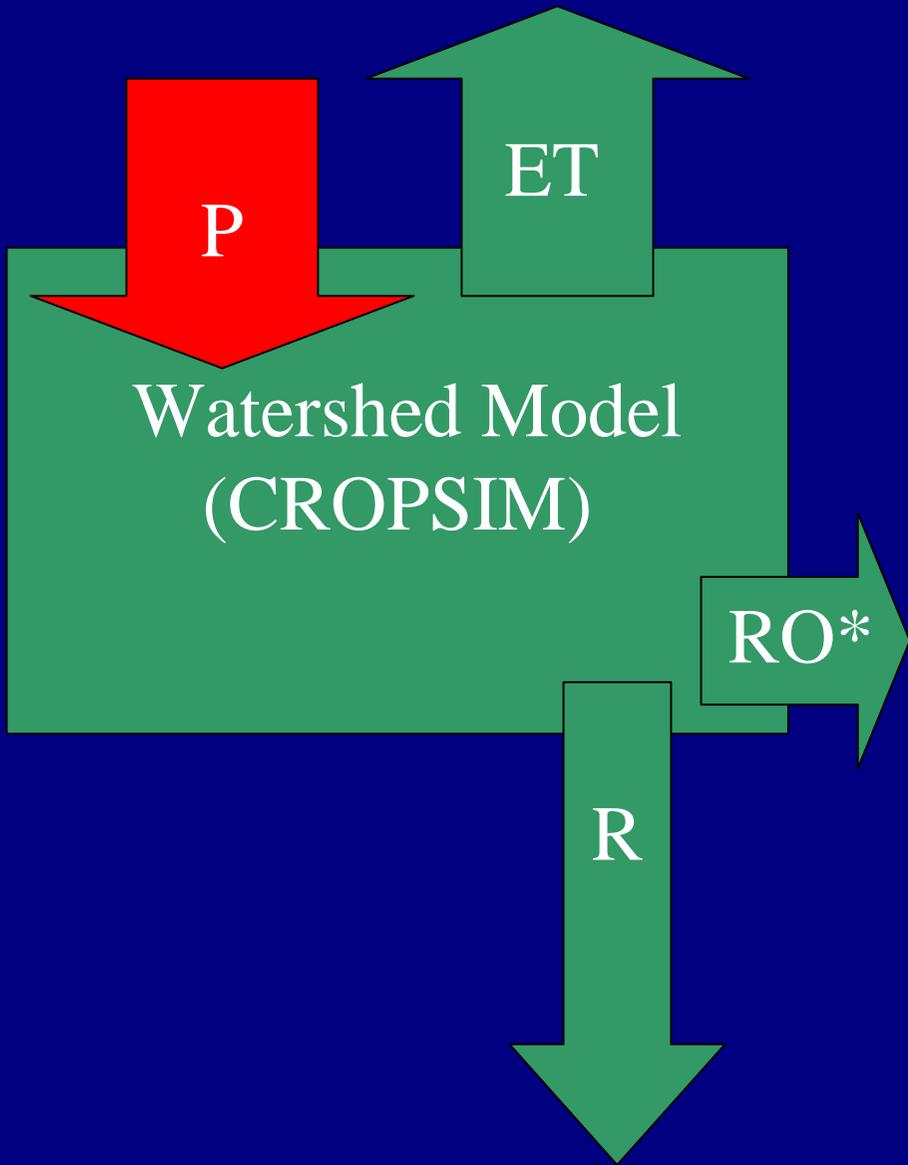


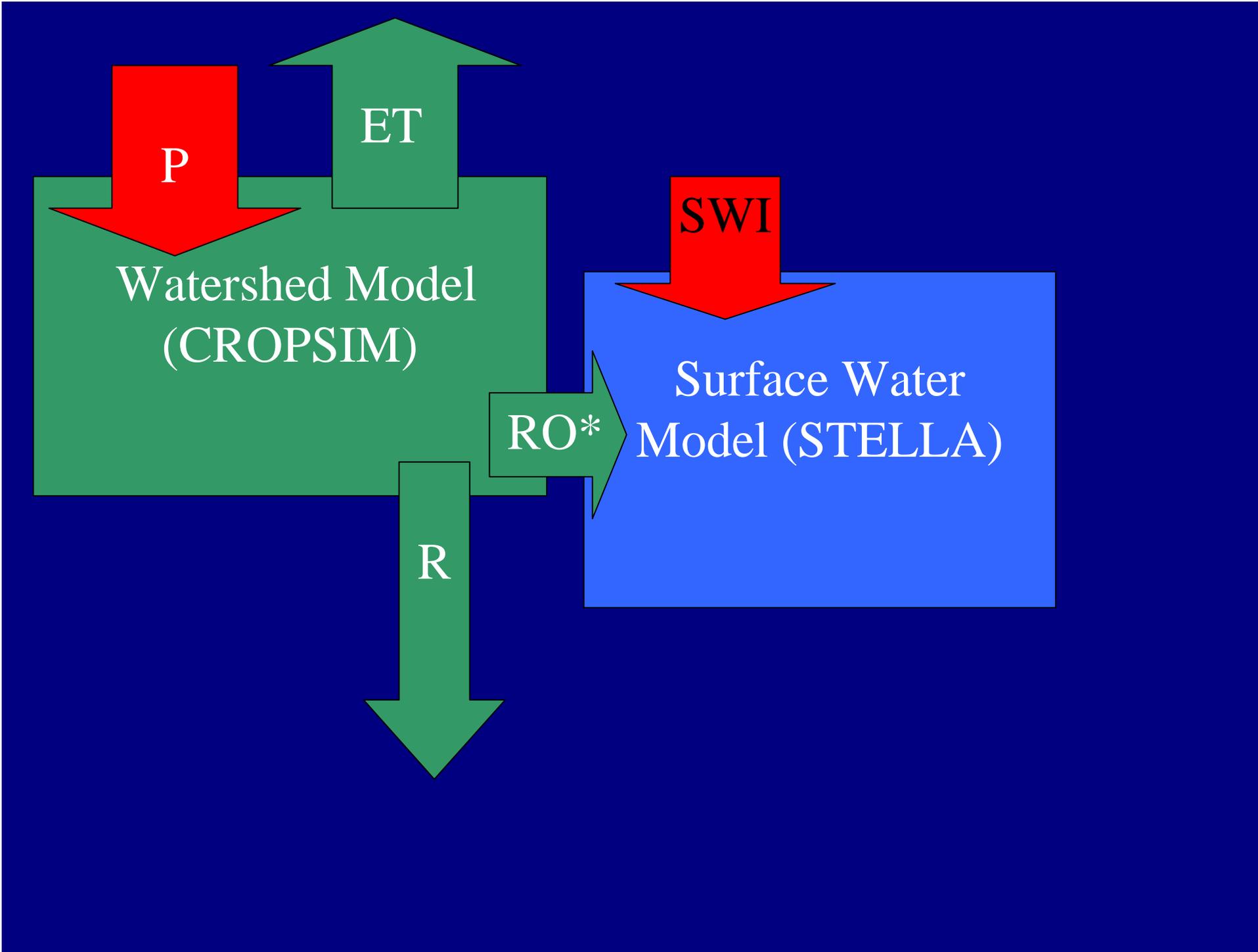
Measured water budget, mean conditions. Units = Million acre-feet/year

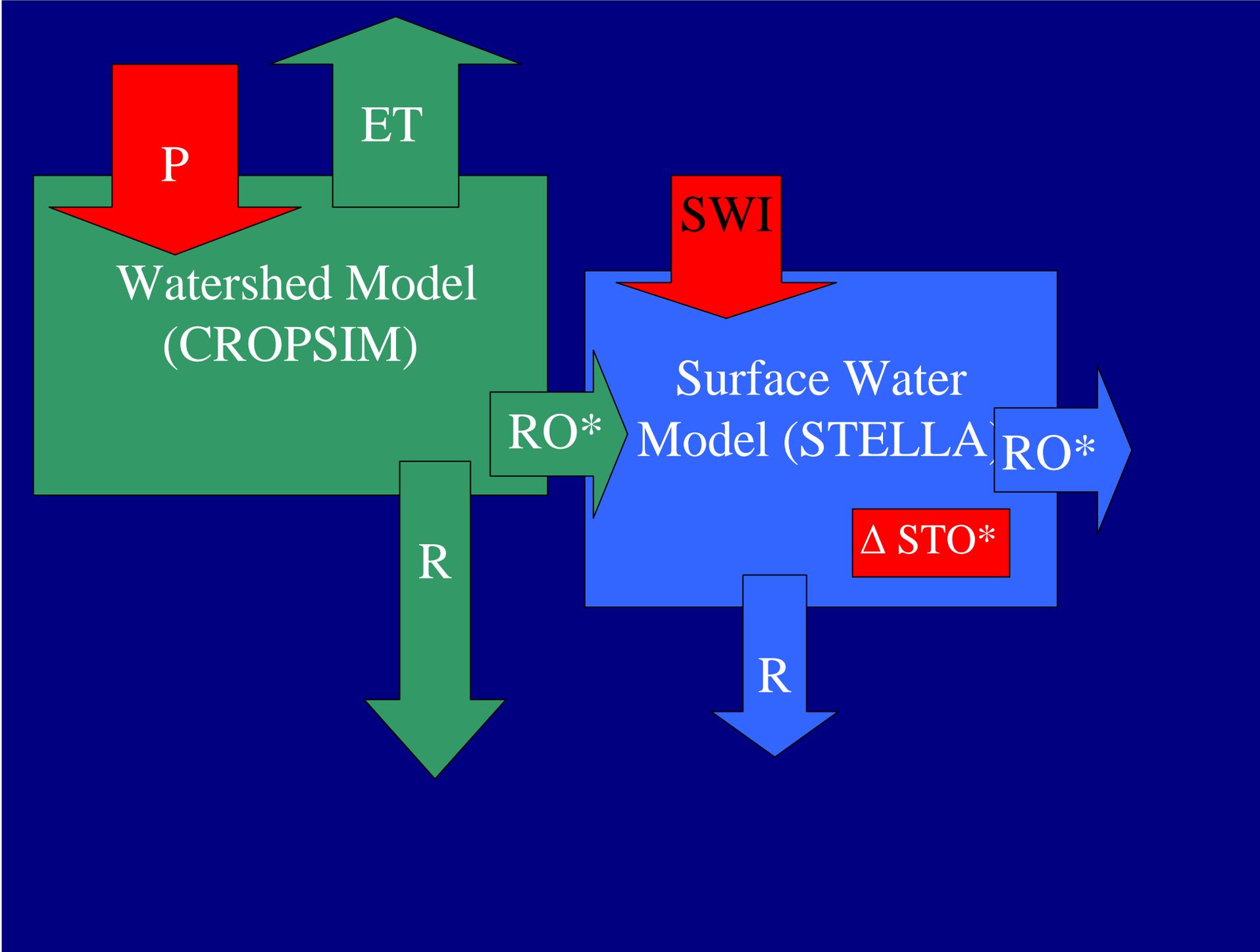


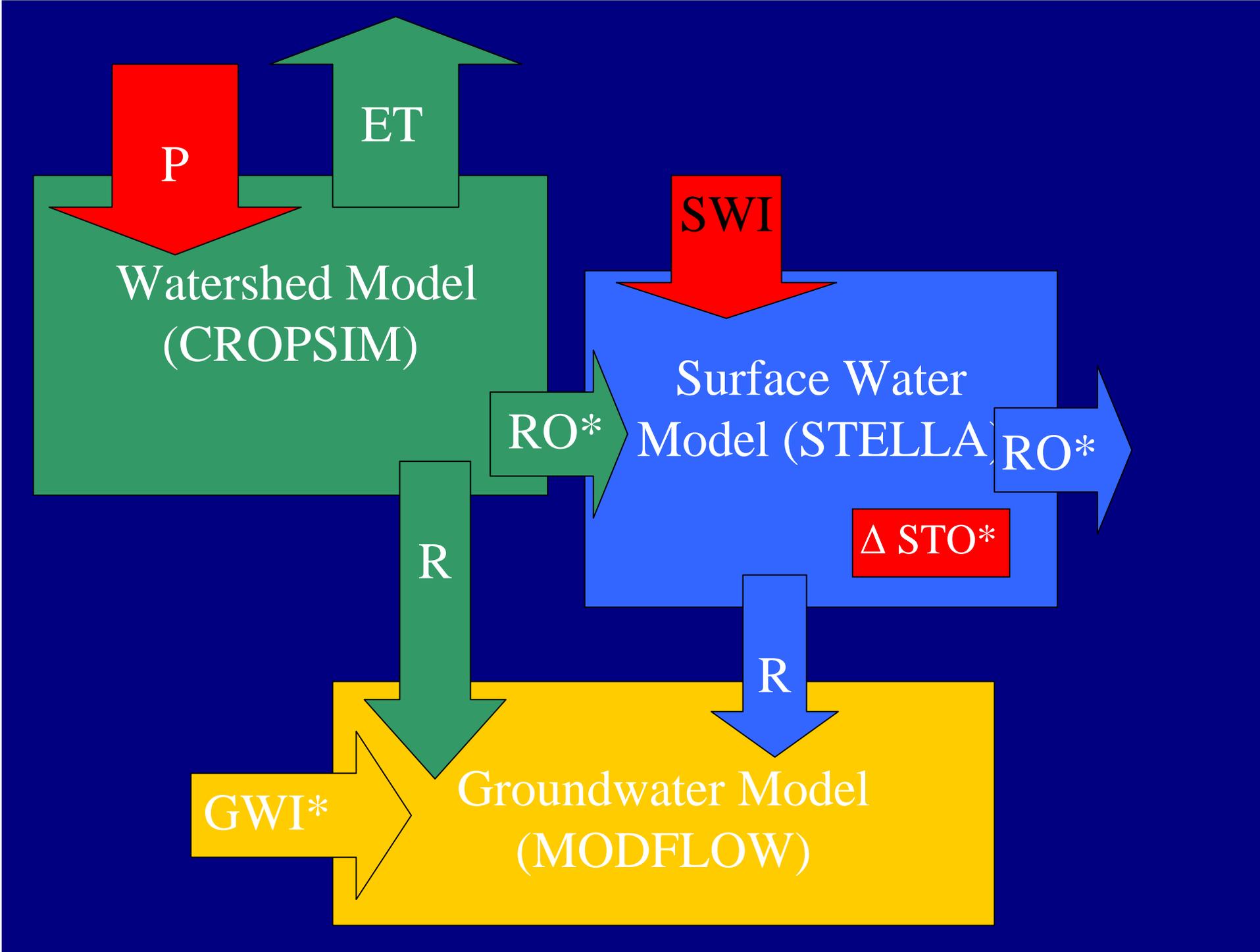
P

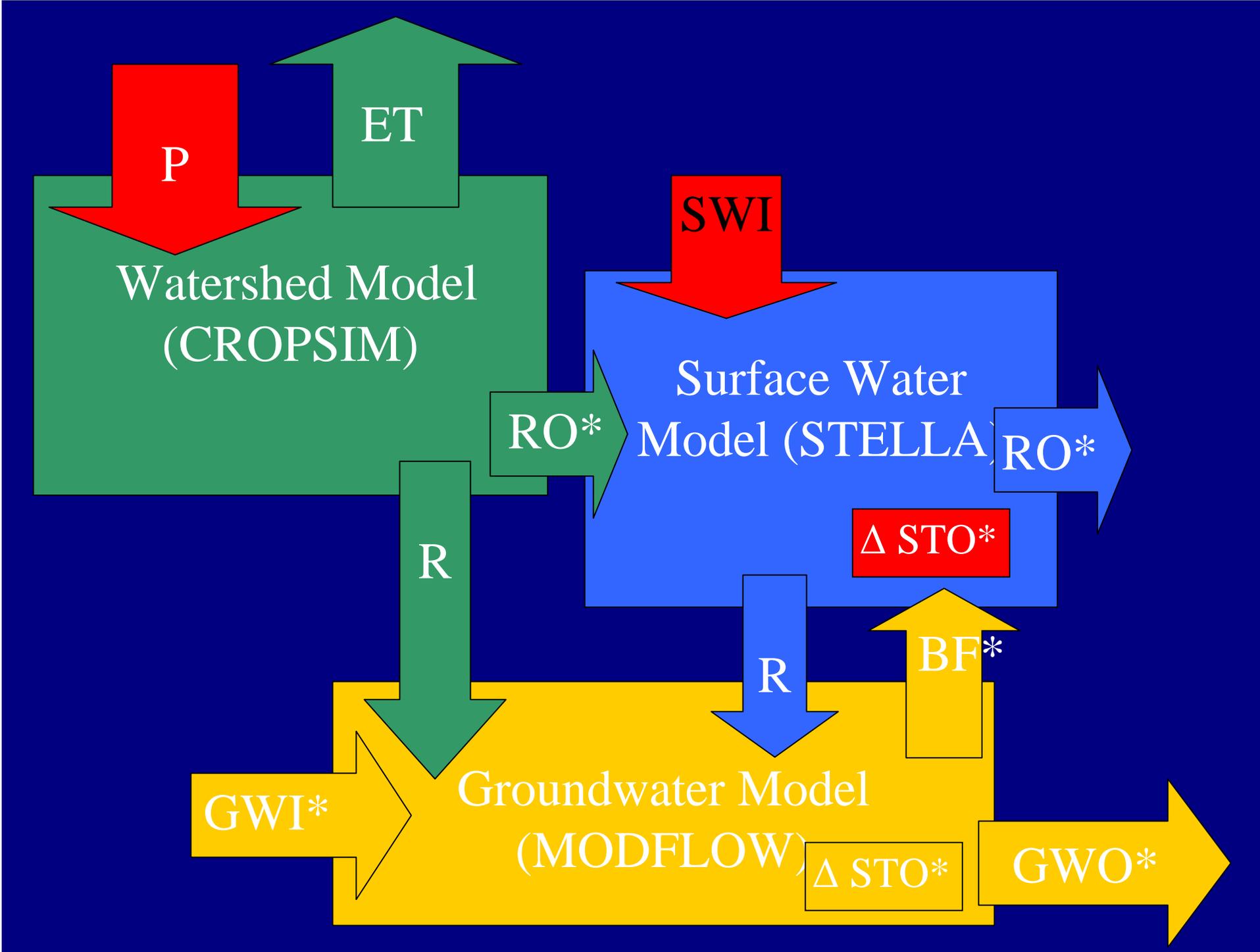
Watershed Model  
(CROPSIM)

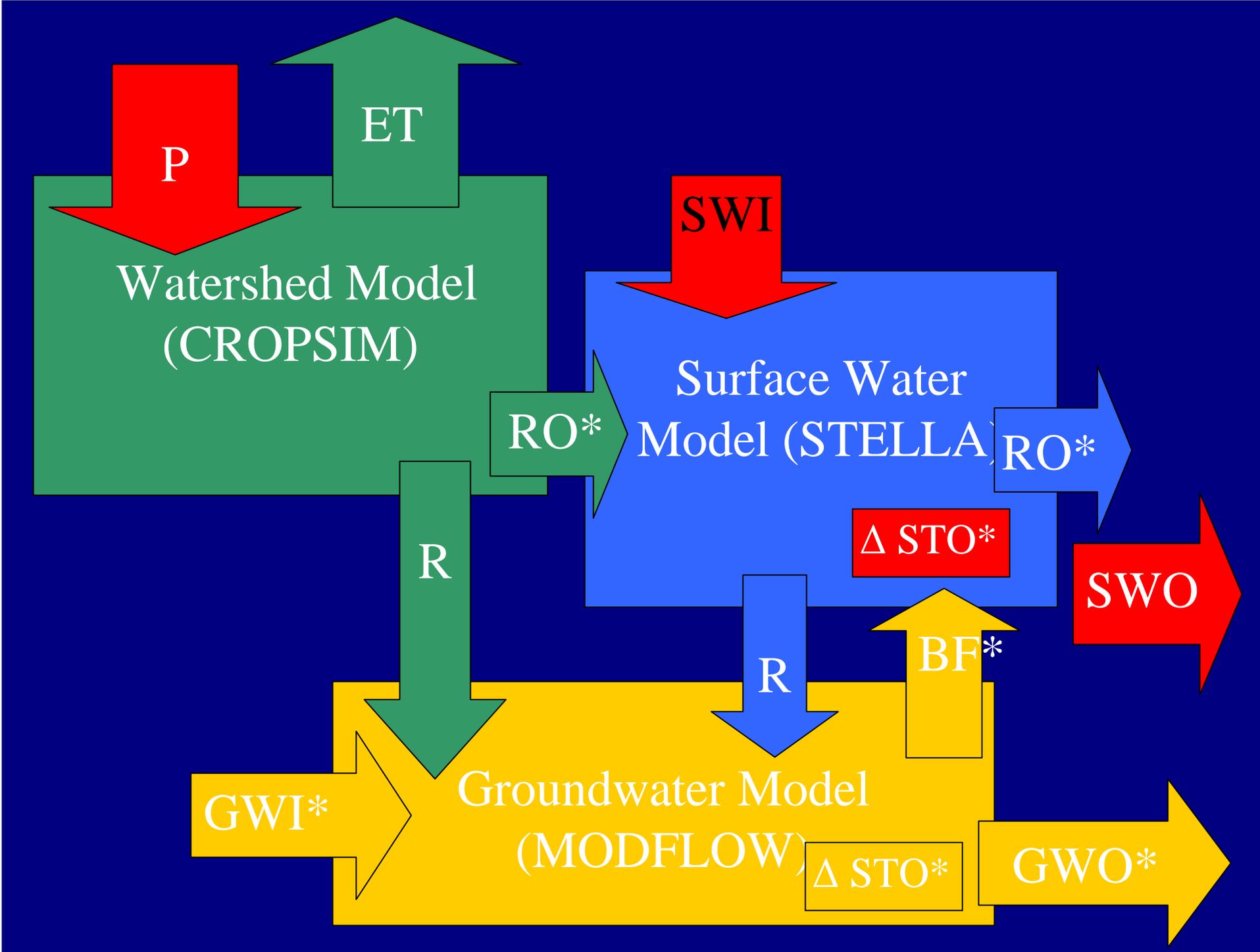








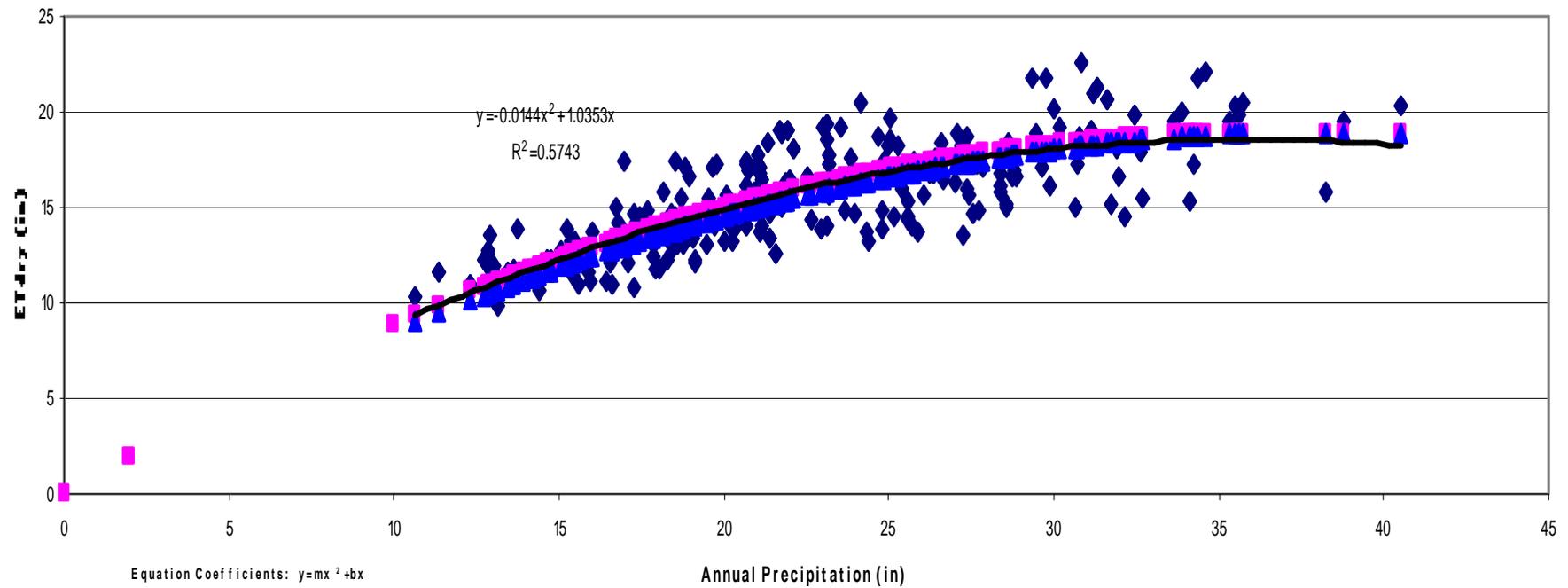






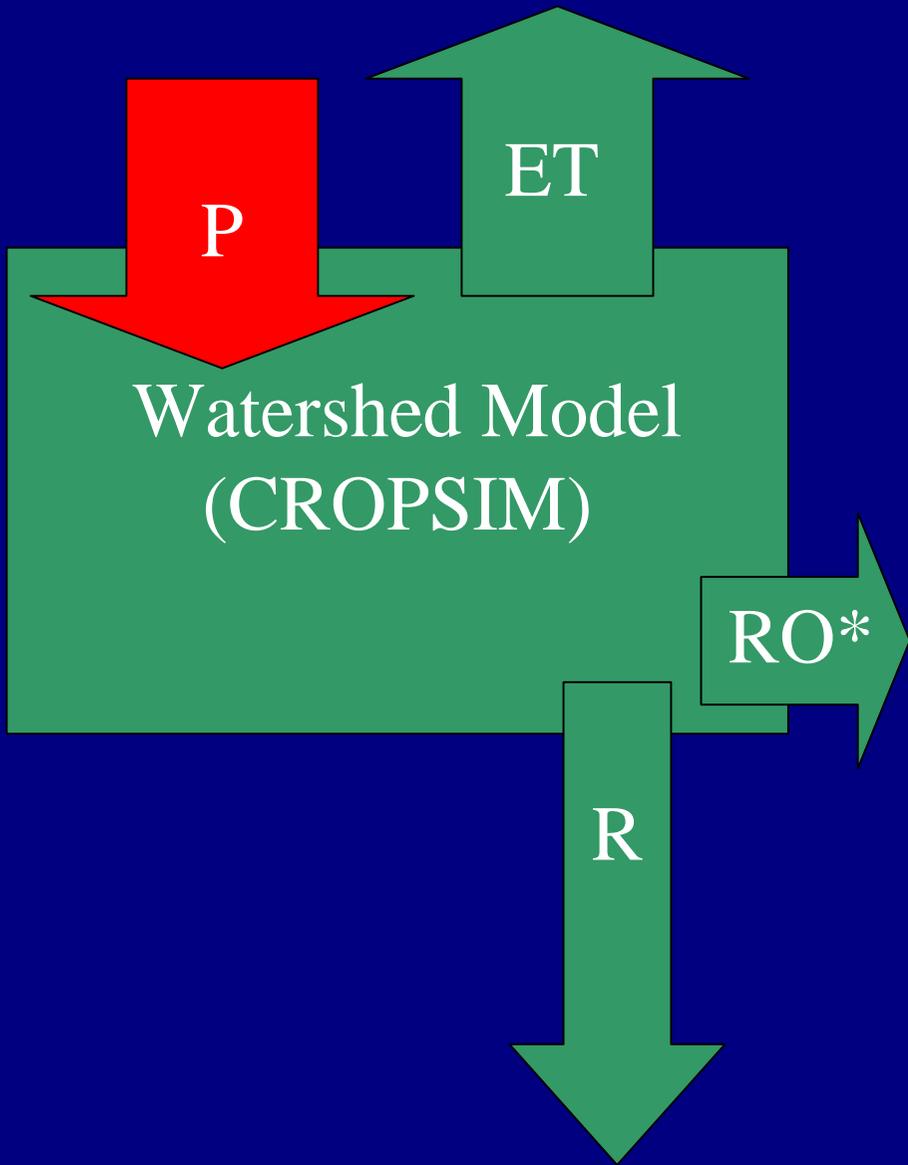
What happens when RO and  
BF do not equal total flow?

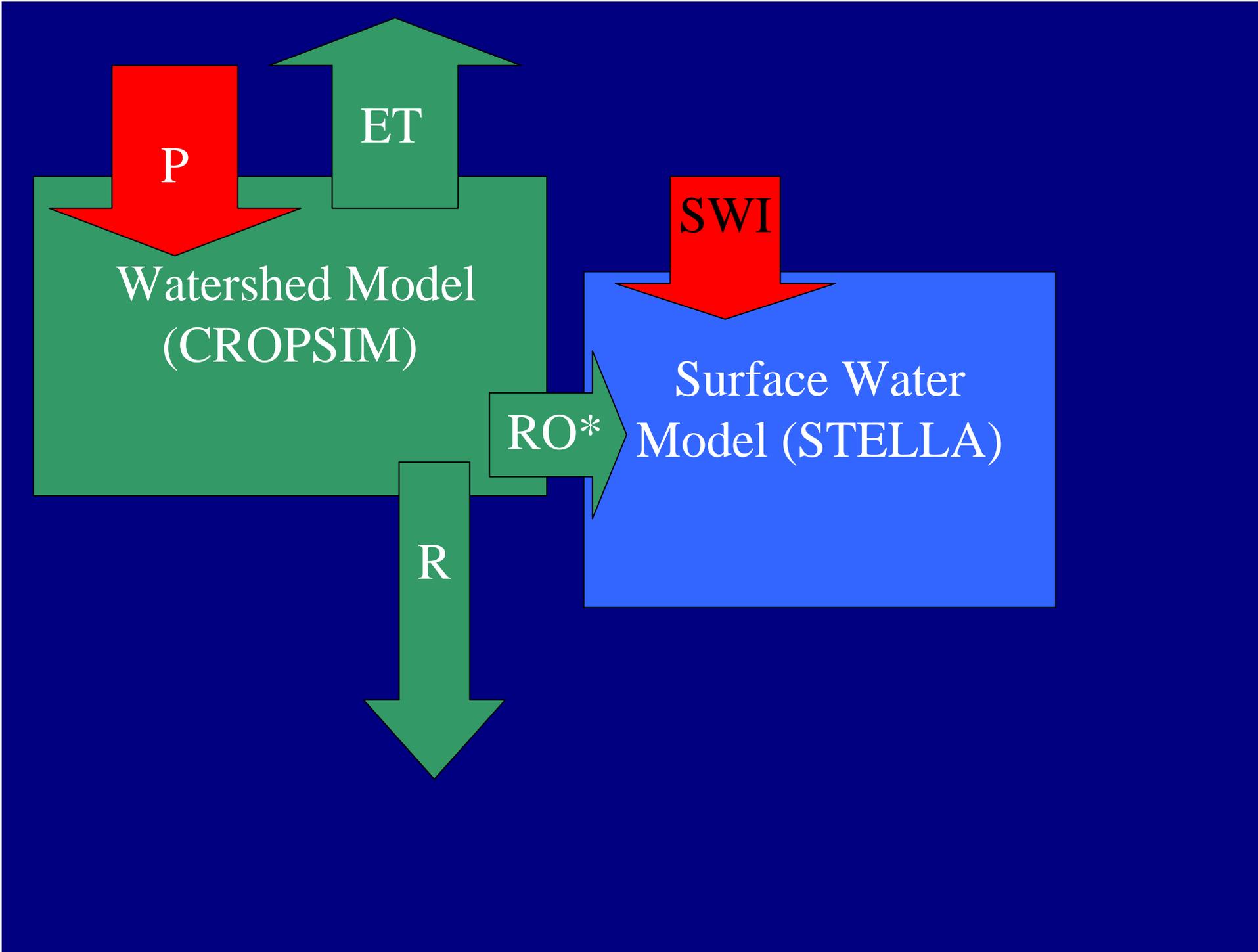
ET vs Annual Precip  
Dryland Corn - Soil 3  
Stations: CLBS, GIAP, GOTH, BIGS

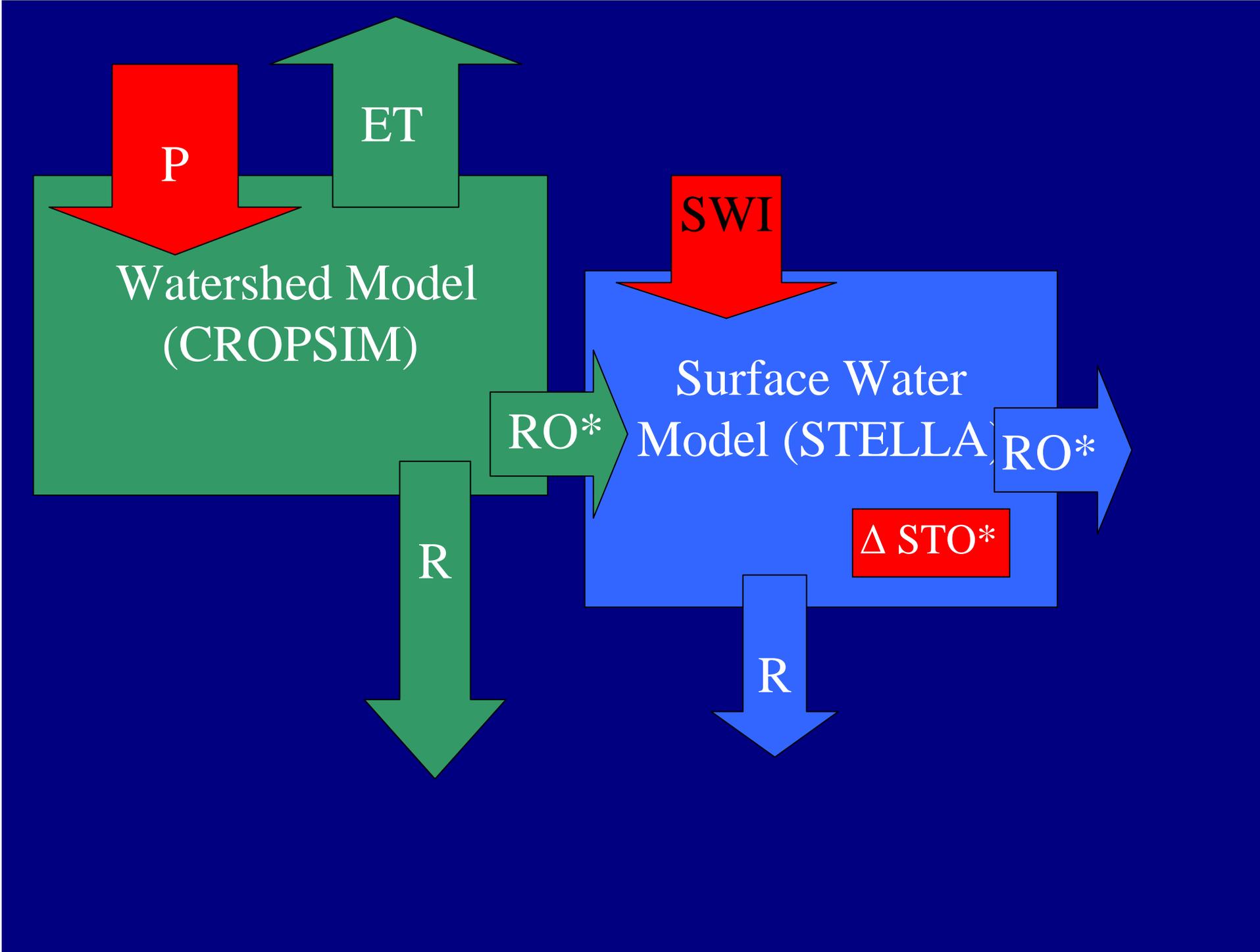


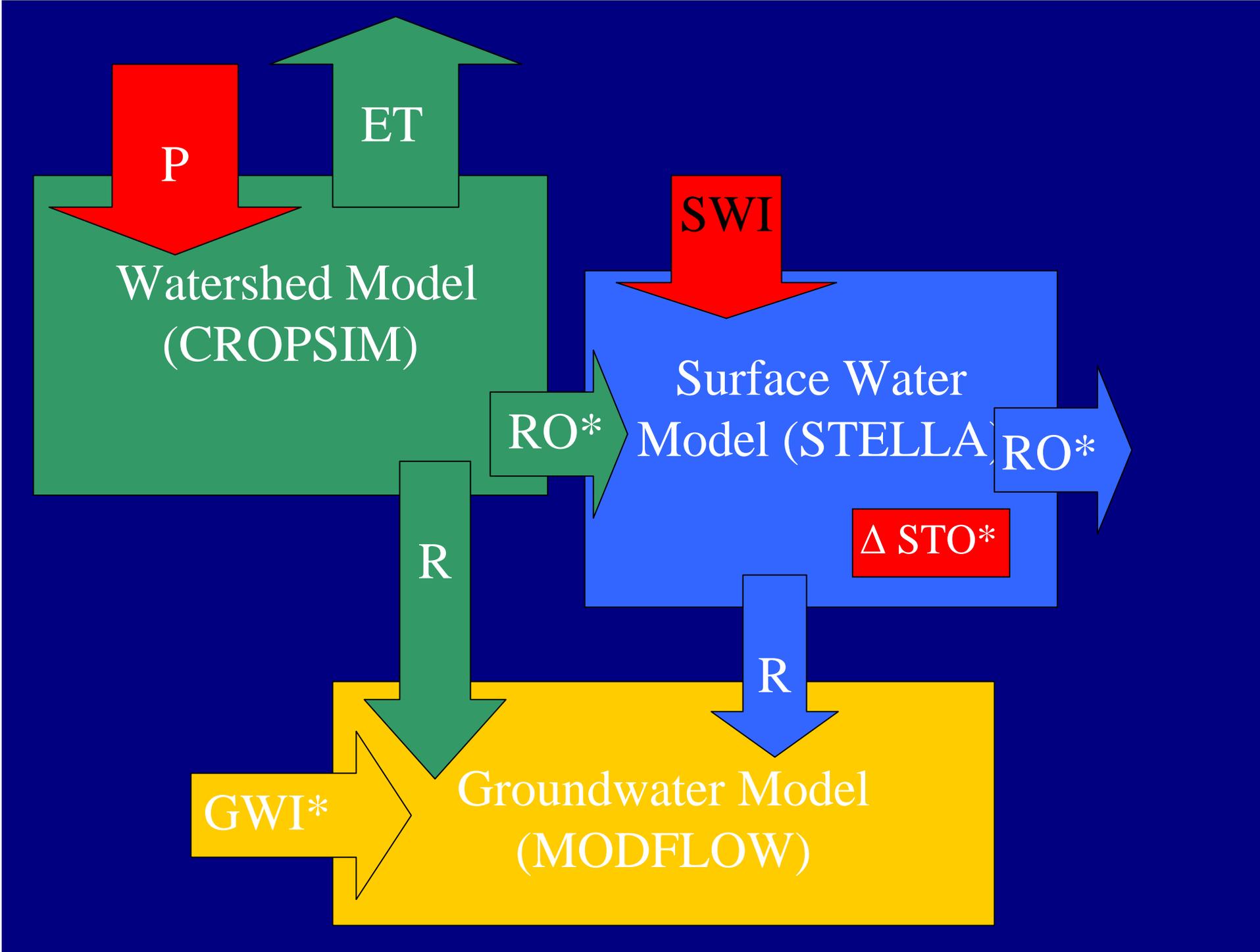
ETadjvol =

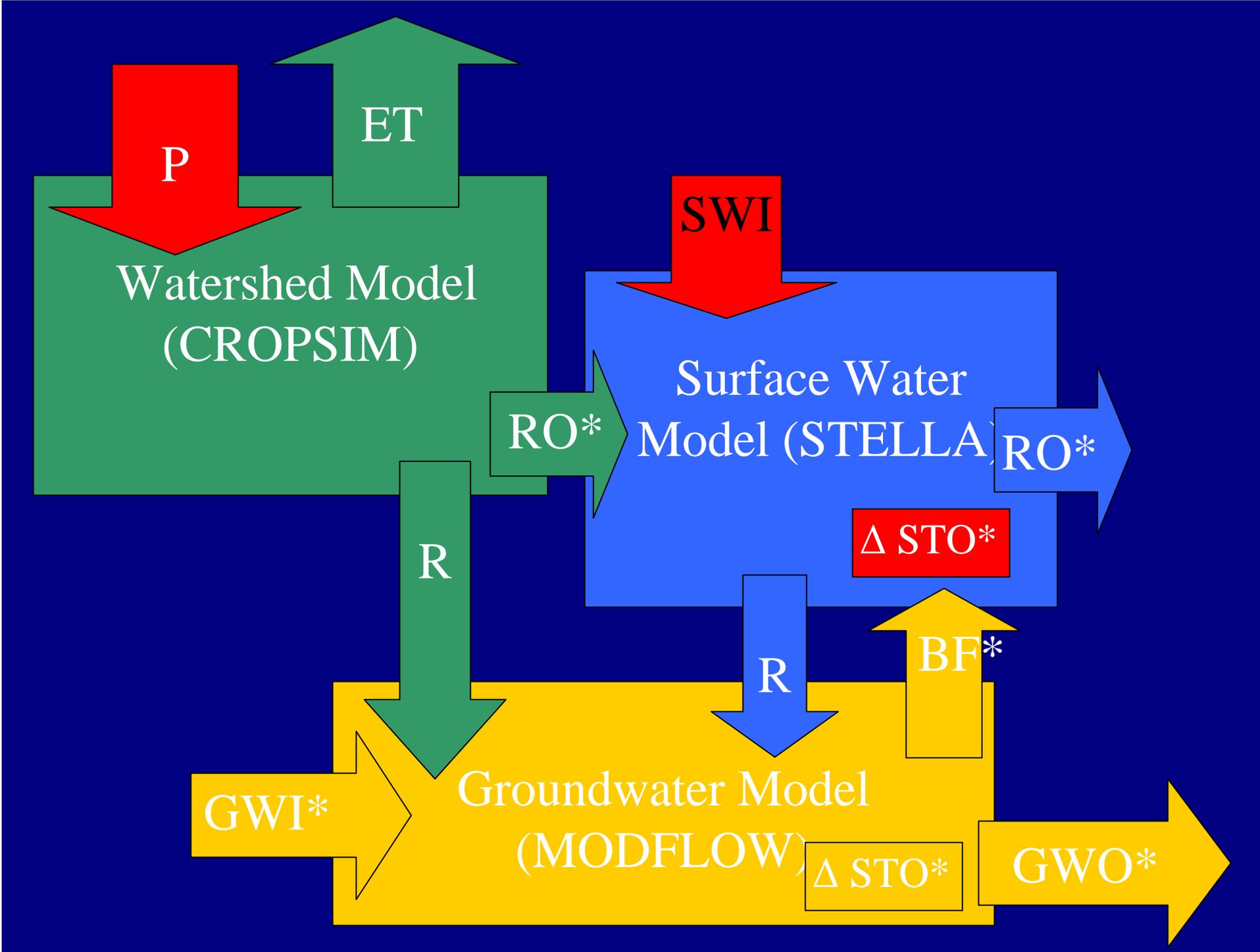
- ◆ ETdry
- Eqn ET
- ▲ ET with ETadjvol
- Poly. (ETdry)

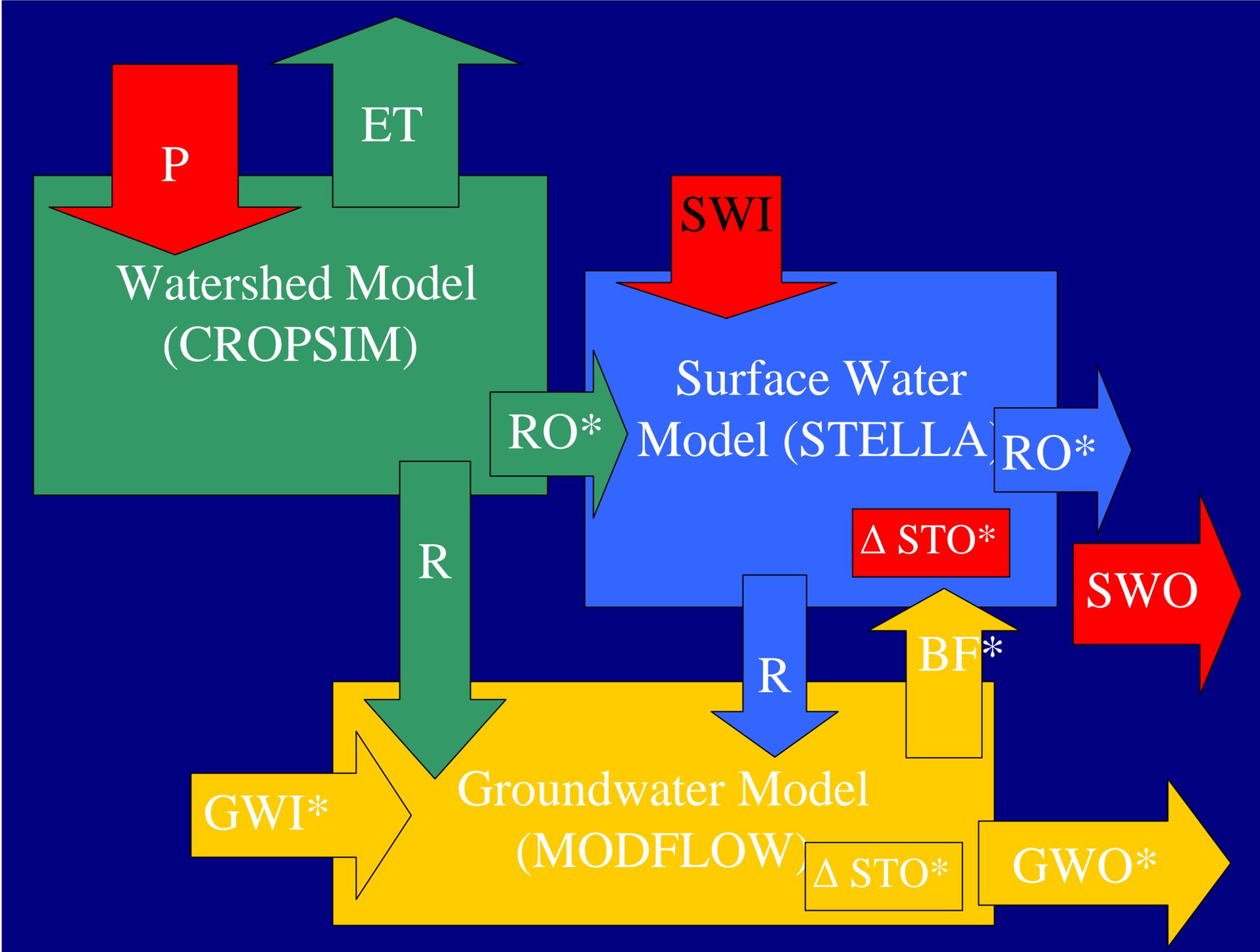


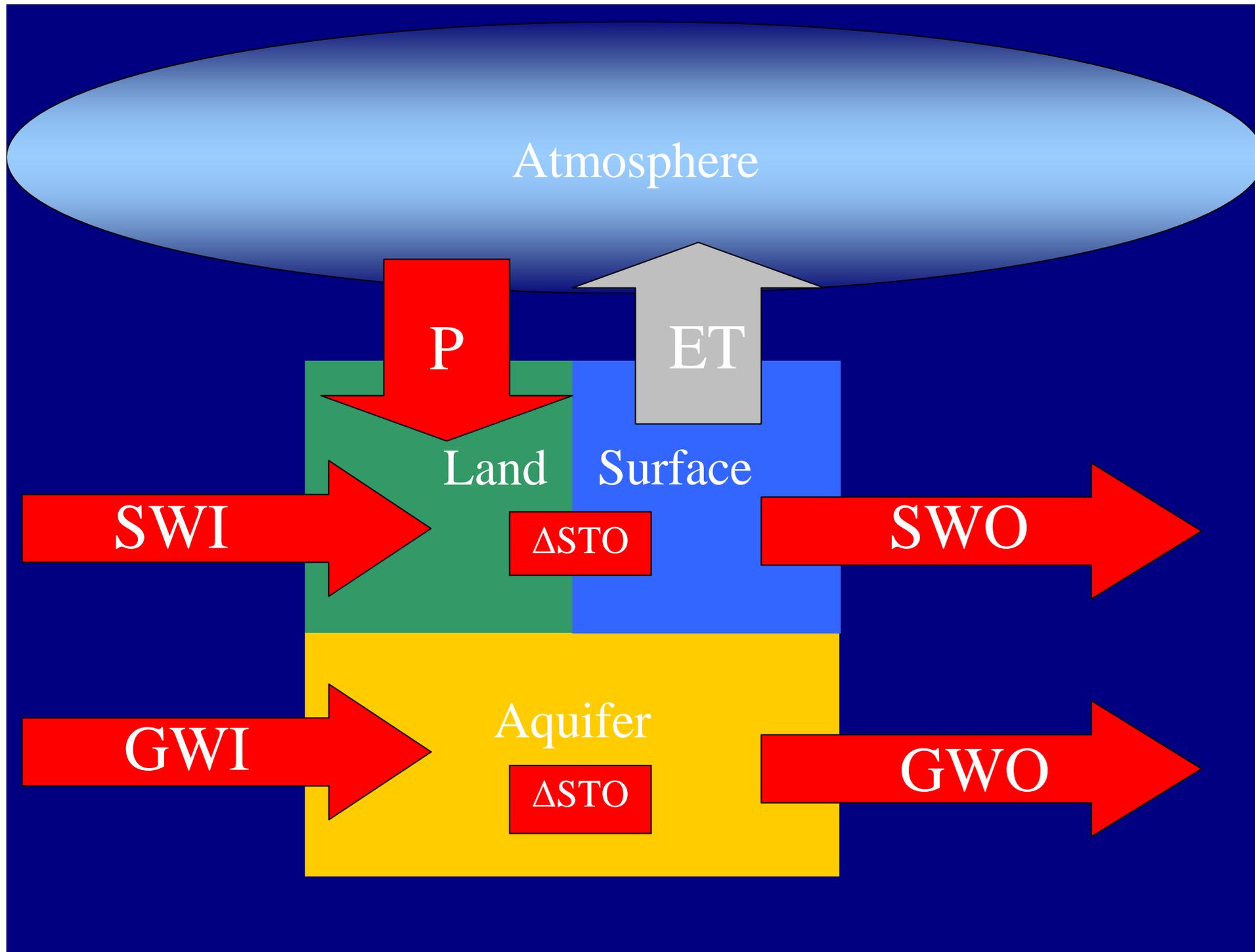


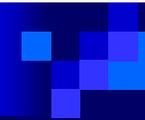






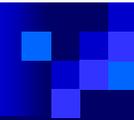






# Acknowledgements

- The “Pioneers” of COHYST and CWM, who did the work and laid the foundation for this effort
- COHYST and CWM Sponsors
- NET
- Others



# Questions?

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