

**Cumulative Effects: The UFO's of
Hydrology**
Room 410 Wed PM
Presider, R. R. Ziemer,
U.S. Forest Service

H32B-01 1520H INVITED

Cumulative Sedimentation Effects of Forest Management
Activities: How Might They Occur?

R. M. RICE (USDA Forest Service, Pacific Southwest
Forest and Range Experiment Station, 1700 Bayview
Dr., Arcata, CA 95521)

R. B. THOMAS (same affiliation)

Concerns are often voiced about possible environmental damage as the result of the cumulative sedimentation effects of logging and forest road construction. In response to these concerns, National Forests are developing procedures to reduce the possibility that their activities may lead to unacceptable cumulative effects. The methodologies dealing with sedimentation effects are usually based on the assumption of significant streamflow increases resulting from forest management activities.

A computer simulation of a watershed is used to explore possible scenarios for the creation of cumulative sedimentation effects. The watershed consists of unit source areas (USA's) which are conceptually harvest areas or roads. Impacts at the USA. are routed downstream to a point of concern (POC) where they are compared with a previously determined background sediment concentration. Varying proportions of the watershed are impacted by differing increases in sediment, streamflow, or both sediment and streamflow. The simulation is used to estimate the likelihood of these situations creating adverse cumulative effects.