Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Enhancing the COMET-VR system: Uncertainty estimation and expanded management options

Type of Project : Research

Project Discipline : Interdisciplinary

Funding Agency: NRCS

Other Partners/Cooperators:

Effective Dates: September 1, 2007 – August 31, 2008

Funding Amount: $251,348.00

Investigators and Agency Representative (contact information):

PI: **:** Keith Paustian, Professor, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523, (970) 491-1547; keithp@nrel

NRCS Project Manager: Carolyn Olson, USDA, NRCS, Washington, D.C 202-720-1821; carolyn.olson@wdc.usda.gov

Project Abstract:
The official public release version of COMET-VR came one-line in April 2007. Further enhancement of COMET-VR are proposed her to improve the performance of the system for areas of the model where needed improvements have been identified and to provide for improved program maintenance and customer service with the anticipated increase in usage of the system for NRCS conservation program implementation. The PI's propose to enhance the capabilities of COMET-VR for providing reliable estimates of soil carbon changes and nitrous oxide emissions, with addition of uncertainty estimation for key systems where uncertainty is presently not estimated in the model. In the current version of COMET-VR, grassland vegetation for grazing management and grassland set-asides are included and rate estimates are made, but an uncertainty estimator has not been implemented due to insufficient field data availability. As part of the proposed new work, additional field-based data will be collected, compiled, analyzed and used in the construction of a statistically based uncertainty estimator, The set of grazing land vegetation types will be expanded to include shrub-grassland mixtures, which are common grazing landcover in many regions of the country, and management-induced transitions of grazing land conditions. Further refinements to the perennial woody crop systems being implemented in the COMET-VR will be made as new data for model validation is collected. Finally, a potion of the funds will be used to assist in enhancing user assistance and help desk functions, program maintenance, and software updating, in anticipation of increased level of usage in the near future and to prepare for migrating the software to new standard platforms.

Outcomes with completion dates (reports, publications, workshops, videos, etc.):

Keywords: COMET-VR, vinyards, orchard crops, N20 flux uncertainty estimator, grassland uncertainty estimator