Carbon Exchange in Mountainous Regions

An emerging challenge of NACP synthesis is quantifying, attributing, and predicting carbon exchange in mountainous regions. These regions contain a significant fraction of the remaining forest in the U.S., have limited observations of carbon exchange, and are currently undergoing significant ecosystem pressure due to increasing trends in pest outbreaks, forest fire severity, drought length, and air temperature. Several recent field campaigns including the NCAR-led Airborne Carbon in the Mountains Experiment 2007 (ACME07) have attempted to address this.

This breakout will attempt to assess current knowledge and future plans on:

1.) Applying regional CO2 inversions, remote sensing, eddy covariance, and ecosystem modeling in mountains
2.) Quantifying error due to slope, micrometeorology variability, and lack of knowledge on elevation-sensitive processes
3.) Modeling and observing outbreaks of insect disturbance, forest fires, and drought and quantifying their effect on carbon exchange at different elevations

Expected products from the breakout: Recommendations for observations in complex terrain, suggested initiatives to improve models of carbon estimates in mountains, and potential for initiation of mini-"MCI West" interim synthesis activity.

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