

NASA Cold Land Processes Experiment (CLPX): Field Measurements of Snowpack Properties and Soil Moisture

Kelly Elder

Rocky Mountain Research Station, USDA Forest Service, 240 West Prospect Road, Fort Collins, CO 80526

Don Cline

National Operational Hydrological Remote Sensing Center, National Weather Service, 1735 Lake Drive West, Chanhassen, MN 55317

Glen Liston

Department of Atmospheric Sciences, Colorado State University, Fort Collins, CO 80523

Richard Armstrong

National Snow and Ice Data Center, University of Colorado, Boulder, CO 80309

Abstract. A field measurement program was undertaken as part NASA's Cold Land Processes Experiment (CLPX). Extensive snowpack and soil measurements were made at field sites in Colorado over four study periods during the two study years (2002 and 2003). Measurements included snow depth, density, temperature, grain size, grain type, surface wetness, surface roughness, and canopy cover. Soil moisture measurements were made in the near-surface layer in snow pits. Measurements were made in the Fraser valley, North Park and Rabbit Ears Pass areas of Colorado. Sites were chosen to gain a wide representation of snowpack types and physiographies typical of seasonally snow-covered regions of the world. The data have been collected with rigorous protocol to insure consistency and quality, and have undergone several levels of quality assurance to produce a high-quality spatial data set for continued cold lands hydrological research. The data set is archived at the National Snow and Ice Data Center (NSIDC) in Boulder, Colorado at nsidc.org/data/clpx/data.html.