

South Platte Decision Support System: Irrigated Lands Assessment And Consumptive Use Modeling

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Abstract. The South Platte Decision Support System (SPDSS) is an extension of the State of Colorado's Decision Support System (CDSS). The SPDSS is developing information and analysis tools that will enable informed decisions in managing the South Platte water resources. SPDSS is nearing the completion of the data collection phase. The data collection effort includes an assessment of irrigated acreage and supports the development of a basin-wide consumptive use model, a surface water planning model, and an alluvial ground water model.

The irrigated lands assessment required a comprehensive spatial database, mapping of irrigated parcels, and mapping of wells, canal and ditch service areas. Crop types for the year 2001 were developed for each irrigated parcel using multitemporal satellite image analysis, with accuracies of about 90 percent. The irrigated land assessment is the basis for the SPDSS consumptive use analysis. Publication research plus water commissioner and water user interviews were used for estimating the remaining parameters for the consumptive use analysis including conveyance and application efficiencies, the use of supplemental reservoir and ground water sources, and general irrigation practices. The ASCE Penman-Monteith daily evapotranspiration method was used to estimate ET for recent years and Blaney-Criddle crop coefficients were calibrated to these estimates. These calibrated crop coefficients will be used in the final basin-wide consumptive use analysis for the period 1950 through 2004.

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