**Report No. TN-110**

# Parameterization of hydrological processes-evaporation and evapotranspiration

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## ABSTRACT

Evaporation and evapotranspiration are important components of the hydrologic cycle. Its determination in the water resources planning and management, design of reservoirs, assessment of irrigation efficiency of existing projects, evaluation of future drainage requirements, quantification of deep percolation losses under existing water management practices, water supply requirements of proposed irrigation projects and preparation of river forecasts is very important.

Evapotranspiration is inextricably linked to other aspects of land-surface processes, in particular, the absorption and disposition of solar radiation, net energy loss by thermal infra-red, height of vegetation, surface temperatures and winds, the distribution and the movement of water through plants, especially roots and leaves.

To model evaporation and evapotranspiration for numeric predictions causes us to examine the entire evaporation and evapotranspiration system and to define the principal cause and effect relationship. Several atmospheric general circulation models of complete dynamic evaporation and evapotranspiration process have been developed in recent years which vary considerably in complexity from single equation with empirical coefficients to very detailed physical representations. They contain one or more atmospheric variables, or an indirect measurement of them, which are often combined with a representation of the surface conditions and interactions. The utility of each method depends upon its requirements for input data, location calibration, and expected accuracy.

A review of the available general circulation models is carried out in this report with special reference to its parameterization of evaporation (EV) and evapotranspiration (ET) in the models. Factors affecting evaporation (EV) and evapotranspiration (ET) are also focussed upon; the sensitivity of these factors to EV and ET need to be studied for realistic incorporation of EV and ET in climate models.