Texas A & M University and U.S. Bureau of Reclamation
Hydrologic Modeling Inventory
Model Description Form

JUNE 18, 1999

Name of Model: Agricultural Policy/Environmental eXtender (APEX)

Model Type: Lumped model

Model Objective(s): To provide a tool for managing whole farm watersheds or small watersheds to obtain Maximum production efficiency and maintain environmental quality.

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Model Structure or Mathematical Basis:

Subarea-EPIC
Hydrology, weather, erosion (water and wind), N and P cycling, pesticide fate, soil temperature, plant growth, tillage
Plant environmental control, and economics
Routing
Overland flow, subsurface flow, channels, and flood plains, water, sediment, nutrients, pesticides

Model Parameters:

Farm or watershed may be divided into several (<100) subareas or fields
Daily time step – long term simulations (1-4,000 years)
Soil, weather, tillage and crop parameter data supplied with model
Homogeneous subareas

Weather generation is optional

Spatial Scale Employed in the Model:

Whole Farm – routing allows evaluation of interactions between fields (surface run-on, sediment deposition and degradation, nutrient and pesticide transport, and subsurface flow).
Examples – terrace systems, grass waterways, strip cropping, buffer strips/vegetated filter strips, crop rotations, fertilizer, irrigation, liming, furrow diking, drainage, waste management (feed yards, dairies with or without lagoons)

Temporal Scale Employed in the Model:

Input Data Requirements:

Computer Requirements:

Dos under Win 95, 98, WinNT

Model Output:

Parameter Estimation / Model Calibration:

Model Testing and Verification:

Model Sensitivity:

Model Reliability:

Model Application / Case Studies:

Documentation:

APEX8190 Manual (draft)

Other Comments: