

ARSP

Model Uses ARSP is designed to determine optimal water allocation within a time series for virtually any water resource system.

Major Categories Hydrology and Water Use; Decision Support

Subject Knowledge Level
Intermediate

Minor Categories Reservoirs; Time Series; Management

Technical Difficulty Level
Intermediate

Model Type Physical Model

Geographic in Nature?
No

Abstract

ARSP is a general multi-purpose, multi-reservoir simulation program which determines the optimal allocation of water for each time-step in a series. This model can represent any water resource system incorporating natural inflows, precipitation, evaporation, and evapo-transpiration as input data. Operational features that can be represented include storage and release of water by reservoirs, physical discharge controls at reservoir outlets, water flow in channels (e.g., streams, power channels, diversion channels, and irrigation channels), consumptive demands (e.g., agricultural, industrial, and municipal), hydropower releases, and losses in channels. These operational features can be specified as steady-state or time-varying.

The ARSP model is capable of simulating a wide range of operating policies governing the allocation of water in a multi-purpose, multi-reservoir system. Operating policies are defined by prioritizing water demands. Water resource system allocation problems involving hydropower generation, flood control, water quality, domestic and industrial water supply, irrigation demands, low-flow augmentation, environmental requirements, fish and wildlife concerns, inter-basin diversion requirements, recreation interests, and navigation requirements can be modeled. Monthly, weekly, daily, hourly, and user-definable time-steps can be used.

The software automatically assigns upper and lower bounds and cost functions to the network flow paths, based upon the physical description and operating priorities specified by the user. In addition, ARSP's ease of use allows the user to quickly make structural and/or operating policy changes through simple modification of the input data.

Future Developments

The development of Winter-time routines.

Increased functionality of the output post-processor program.

Model Limitations

Not suitable for Winter-time applications or assessments.

Model Features

- Representation of water resources by incorporating natural inflows, precipitation, evaporation and Evapotranspiration
- Can model the storage and release of reservoir water through various channel types, consumptive demands and losses
- Aids in decision making and management or policy decisions based on aforementioned criteria
- Supports Imperial and Metric Units
- Can produce Time-based graphs

Required Data Types

Physical description and operating priorities information through user interfaces.

Model Outputs

Time-based graphs and other visual aids useful in decision making and planning.

Source

BOSS International

Source (URL)

http://www.bossintl.com/html/arsp_details.html

Hardware Requirements

None noted.

Supported Platforms			
DOS	<input checked="" type="checkbox"/>	UNIX	<input type="checkbox"/>
Windows	<input checked="" type="checkbox"/>	Macintosh	<input type="checkbox"/>

Software Requirements

No additional software is required.

Cost, Licensing and Availability

\$2,995 - available from BOSS International.