



OPSIM

OPSIM FEATURES

GENERAL PHILOSOPHY OF THE OPSIM MODELLING SYSTEM

OPSIM is a general purpose operational simulation model for water resources systems. The program has been designed to be a flexible analysis tool and may be used for a variety of applications. Typical examples include: mine site water management; water supply reservoir yield; assessment of multiple water supply reservoir operating rules and strategies; and water resources planning.

OPSIM operates by dynamically simulating the physical processes within a water circuit on a daily or a monthly time-step basis. These processes include the generation of water, its collection, storage, distribution, dissipation and release. Full account is taken of all water within the system and any dissolved salts which it carries.

The water circuit must be schematised for simulation using OPSIM. The schematisation process involves describing the prototype circuit in terms of a number of nodes that are interconnected by links. The nodes perform operative tasks within the water circuit and the links define the interconnections between the various nodes. The program offers a range of node types to perform various functions. These include general water storages, river sources, general water sources and sinks. Functional nodes have been developed for mining applications and include process plants, controlled environmental release, tailings dams and water treatment plants. Detailed account of both direct and local catchment rainfall runoff is included.

OPERATING SYSTEM

- OPSIM runs on the Microsoft Windows 2000 / XP / Vista / Win 7 operating system. Due to the numerical demanding nature of simulation modelling and relatively powerful workstation is recommended (e.g. 2GHz Pentium processor or better, 2GB RAM, 20GB free disk space).
- The software is self contained and requires no extra support software. If required (e.g. for reporting) results can be exported via Clipboard (graphics and text) and CSV text file format.
- If the User has MapInfo installed on their local machine then OPSIM will open a MapInfo viewport within the OPSIM User Interface to allow GIS based model node referencing.
- The software is security protected by WIBUKEY hardware lock. This is a USB device that can either be mounted locally or on the local LAN network.
- The software is provided on an installation CD, or download from the OPSIM area of the Water Solutions Web Site (password access required). Local machine Administrator User access privileges are required for installation.



OPSIM is a general-purpose, operational simulation solution for the expert modelling of both natural and industrial water resource systems. The software provides technicians and managers with a robust and powerful tool to handle the most demanding situations with ease and without compromise.



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Simulation Scope	<ul style="list-style-type: none"> • Water, Solids and User definable analyte suite • Full mass balance at every simulation time-step • Solids properties specified with respect to particle density, dry bulk density and moisture content • Analytes specified with respect to their name, units, molecular weight, and charge • TDS calculated from analytes, or User defined • Density and charge balance calculated from data • Daily and sub-daily time step resolution • Three modes of simulation: static (suspends solids accumulation); historical; and forecast • User definable scenario modification for modelling changing model configuration and operation over time • Real or relative date / time data formats supported • Scenarios mastering for model distribution to third party users
Climate	<ul style="list-style-type: none"> • User definable rainfall sequences • Spatially variable rainfall • Delineation between open water evaporation and evapotranspiration • Allows adjustment of evaporation to account for seasonality, site specific bias, co-incident rainfall, concentration and composition of analyte (TDS or individual) components
Predefined Nodes	<ul style="list-style-type: none"> • Engineered to model any mining operation • Processing plants (e.g. ore feed with tailings production) • Tailings storages (incl. solids accumulation & consolidation) • Water storages / dams (with associated features, e.g: pumps, spillways, seepage,..) • Rule based operational water demands • Evaporation ponds / tunnels • Heap leach pads • Land application disposal areas • Environmental release controls • Catchments and stream flow paths • Water geochemistry • Water treatment, conditioning and processing - with sludges • Water desalination – Reverse Osmosis (RO) and Mechanical Vapour Reduction (MVR) • Water mixing and transfer to performance targets • Additional user specific node types can be added (by OPSIM Pty Ltd) on request
Analysis	<ul style="list-style-type: none"> • Comprehensive tabulation and plotting capabilities • Comparison between simulated and calibration • Time series analysis • Event series analysis • Statistical analysis (e.g. Probability, Percentile, Percentage of Time etc) • Maths Analysis (data manipulation and combination) • Full copy/paste and export capabilities • Full audit balance file output • Export of graphics and tabulations to multiple data formats (via clipboard or file)
Catchment Runoff	<ul style="list-style-type: none"> • By either direct depth specification, or via soil moisture balance accounting (AWBM) • Multiple User defined land use classifications • Separation into surface and sub-surface streams • Multiple definitions per receiving node • Quality specification (with respect to a User definable analyte suite) using either antecedent rainfall/ rainfall proportioning or direct concentration
Quality Assurance	<ul style="list-style-type: none"> • Developed and used by professional engineers and scientists for real world applications • Extensively used throughout Australia • Scenario mastering (locking) with unique identification • Built-in scenario comparison and change management review • Anti-tamper data management and alerts • Models can be fully documented by the User on screen • All analysis parameters are fully disclosed and scientifically based • All analysis methods and operational rules are technically based and substantiated • Fully documented • Australian know-how