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| **Summary:** Sahysmod is a mathematical (numerical) computer program (model) for simulation and prediction of the salinity of soil moisture, ground and drainage water, the flow of groundwater, depth of the watertable (water table) and the drain discharge in irrigated agricultural lands under different geohydrologic conditions, varying watermanagement (water management) options, including the re-use of groundwater (ground water) for irrigation by pumping from wells (conjunctive use), and several crop rotation schedules. The aquifer may be unconfined (phreatic) or semiconfined (semi confined, leaky). The spatial variation is accounted for by a nodal network of polygons. |
| **General:** Sahysmod combines the agro-hydro-salinity model SaltMod and an adjusted/extended polygonal groundwater (ground water) model SGMP of my colleague Dr.J.Boonstra. It allows for the introduction of unconfined (phreatic) and semiconfined (semi-confined, leaky) aquifers.     The modelling (modeling) helps in determining sustainable land use and environmentally sound watermanagement (water management) for sustainability.      When the maximum number of polygons (300) is used, the data base becomes quite large. The latest version has improved network-making functions and a version with more than 300 polygons can be made available on request. |
| **Details:** The model calculates waterbalances (water balances, budgets), actual from potential evaporation (evapotranspiration), capillary rise, deep percolation, and groundwater (ground water) flow.     Optionally, farmers' responses can be simulated adjusting agriculture and irrigation to waterlogging (water logging) and salinity.  During May 2005, Mr. Juan Manuel Mendía and Mr. Javier Sassi, Comahue University, Rio Negro, Argentina, have made considerable efforts to test the input menu. As a result it was adjusted in many instances. I would like to express my gratitude to both gentlemen.     In September 2006 I visited the university of Bonn (Germany) where the model is used for assessment of watermanagement (water management) in a valley in Marocco ([reference](http://books.google.nl/books?id=whahFzf6dfAC&pg=PA192&lpg=PA192&dq=sahysmod+north+africa&source=bl&ots=dTnmZh88eh&sig=SuGzwQ7h0CMumCLb9isIXiCbSTg&hl=nl&sa=X&ei=0u2YUP_4K9GA0AXJ44CADA&sqi=2&ved=0CCcQ6AEwAQ#v=onepage&q=sahysmod%20north%20africa&f=false)). As a result the model was further improved and extended to accommodate particular situations.     In November 2008 the guided procedure for construction of the polygonal network was improved thanks to the efforts of Mr. Tsegay Fithanegest Desta who applied the model in NE Thailand ([reference](http://www.itc.nl/library/papers_2009/msc/aes/desta.pdf)) . Again, the procedure was extended as a result of comments by Mrs. Francesca Verones from Switzerland.      On 20 September 2011 the program was given the facility to bring the rotation type under the farmers' responses, which resulted in version 1.3.3 On 24 September 2011 the general input interface, in some cases, was given a multiple choice box instead of an edit box.     *On 3 July 2012 SahysMod was totally brought under Delphi so that the auxiliary Fortran files are no longer required and the size of the package was considerably reduced.* This is version 2.1.1. On 25 Novenber 2012 also the option was given to paste polygonal coordinates from the clipboard.     Tanks to correspondence with Joel Monschke, an output writing error of soil salinity that crept in lately with a new update was restored on 21 June 2013. |