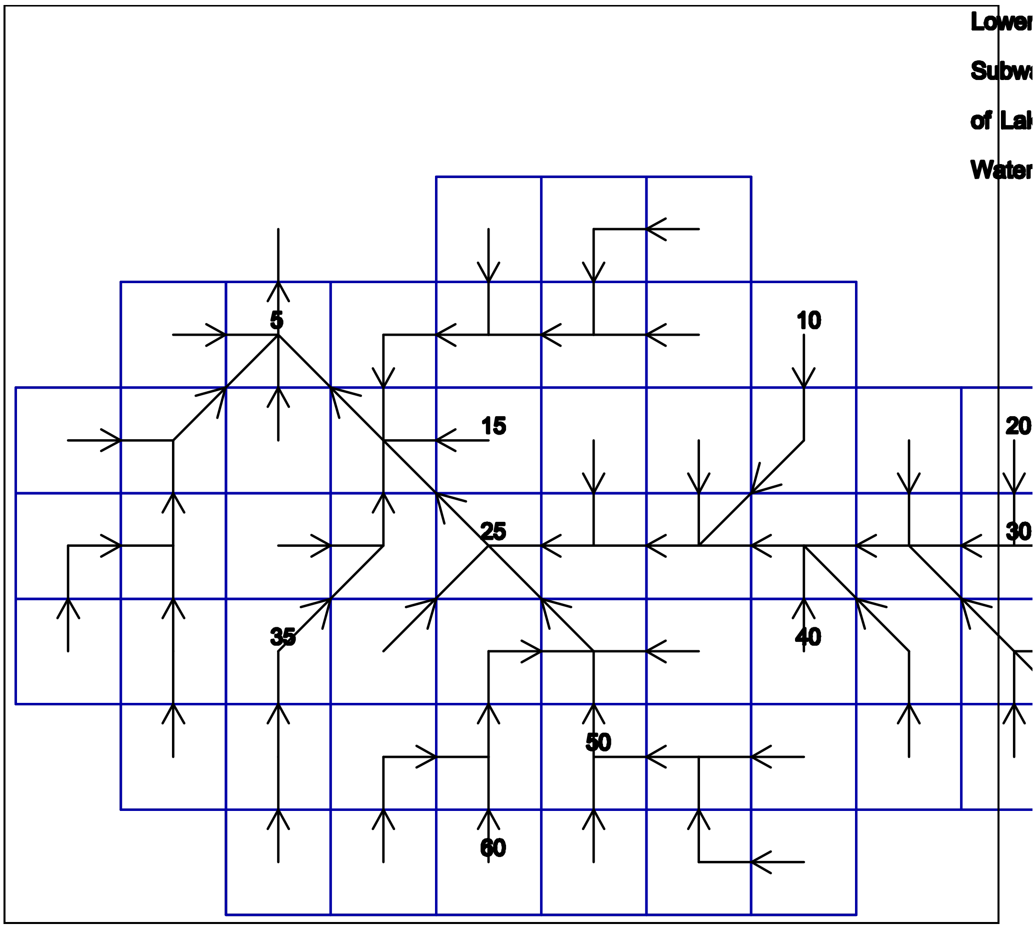
A Quarterly Report — AGNPS Newsletter

Winter 1993



This marks the 3rd anniversary of the AGNPS newsletter! We hope it has met its objectives of informing our users of current and new developments on the AGNPS model over the past three years and hope it will continue throughout the next year. We appreciate your comments and/or suggestions concerning both the model and newsletter.

Notes On AGNPS Use

The latest version of AGNPS, version 3.65.5 dated November 1992, has received a couple of modifications in the past month. Two "programming bugs" were discovered and have been corrected. Therefore, while the version number has remained the same (3.65.5), the version date has been updated to January 15, 1993.

One "bug" was in the "Copy Cell" function within the spreadsheet. If a cell NOT having any additional channel data was copied to another cell that did contain additional channel data, this additional channel data was not being deleted. However, the "bug" would not appear until the data file was saved and reloaded. Then a column of zeroes would appear in the spreadsheet because the channel data still resided in the data file.

The second "bug" was in the CHKDATA module involving a minor routing problem. If you would like a copy of this latest update, send us a diskette and we will return it to you containing the update.

Please note: we have begun distributing the AGNPS program on 5 1/4 inch, Double-Sided, High-Density (DS/HD) diskettes. Please specify if you would prefer 3 1/2 inch or 5 1/4 inch Double-Density (DS/DD) diskettes.

We are looking into adding additional print drivers to the AGNPS program to increase its printing capabilities and flexibility. In the mean- time we are making a request to our users to test for us the ability of AGNPS 3.65.5 to print Grafix output on color printers. Since we do not have any color printers in our lab, we have been unable to do any testing with them. However, we have learned the Hewlett Packard PaintJet XL can interpret HPGL, which is what AGNPS uses when sending Grafix output to an HP Plotter. Please inform us how successful you are on getting color Grafix printouts from AGNPS.

We have received some calls from users asking how to use the AGNPS model to handle special scenarios, specifically 1) tieing in sub-watersheds to overcome the 1900 cell limitation and 2) feedlots that are larger than the cell size. Therefore, a short explanation on how to simulate each scenario follows.

1. To incorporate a sub-watershed (A) into another watershed (B), A's output must be added to one cell in B, the cell where A drains into B. This is accomplished by entering A's output as two parameters to B, a non-feedlot point source and gully erosion. Sub-confused yet?!! The non-feedlot parameter accounts for A's hydrology and nutrient output while the gully erosion parameter accounts for A's sediment output. The hydrology (Runoff Rate in cfs) and nutrient (Soluble Nutrient Concentration in Runoff in ppm) outputs can be taken from the SUMMARY View Tabular screen while the sediment (Total Sediment Yield in tons) output can be taken from the SEDIMENT View Tabular screen.

2. When a feedlot's size is larger than the cell size it is located in, special attention needs to be given to the cell parameters of the cells that the feedlot area spans. The following example explains the procedure to follow. Let's assume a feedlot covers an area equal to four cells. Rather than enter information for four feedlots (one feedlot for each cell), enter the feedlot data in only one cell, the cell where the feedlot outlet is located. The area of the feedlot can exceed the area of the cell. However, to properly represent the overland flow of the feedlot, the cell parameters of the four cells the feedlot actually covers must represent the terrain of the feedlot area! Therefore, the C-Factor, P-Factor, K-Factor, etc. of the four cells representing the feedlot should reflect the land characteristics of the feedlot. You do NOT have to enter channel data for each of the four cells because the feedlot input screen allows for the channel information to be entered as buffer strips.

Another area of discussion that was brought to our attention concerned the correct way to enter channel lengths for cells having more than one incoming flow path. The optimum way to enter channel lengths for cells having multiple incoming flow paths is to enter a channel length of zero. This will allow the model to calculate the channel length for each flow path. Otherwise, if a value greater than zero is entered for channel length, this length is used in calculating all flow paths for the cell. Unless you want to reflect a specific channel length within such a cell, we suggest entering zero for channel length.

Current AGNPS Developments

The SCS version of AGNPS (version 4.0) was presented to SCS personnel in Washington D.C. the last week in January. Several modifications and additions to the model were requested by SCS during this visit. The model will be reviewed again in March by SCS and when approved, will be available to the public as a beta-version.

The Annualized version of AGNPS (ANNAGNPS) has been held up again due to several unforeseen circumstances. However, the winter routines are now being finalized and when tested and validated, we anticipate a beta-version to be released soon after. We are sorry for the delays in releasing a beta-version of ANNAGNPS. However, it is a very intense model encompassing many parameters and scenarios, and we are reluctant to send out an incomplete program.

If you would like to be beta-version testers for either the SCS version or the Annualized version of AGNPS and haven't already notified us, you may do so by contacting Basil Meyer at 612-589-3411 or FAX 612-589-3787. We will then contact you when they are ready for distribution.

For those of you who have a modem, we are testing an electronic Bulletin Board System (BBS). When complete, the BBS will allow users to obtain the AGNPS program, manuals and newsletters directly over the phone lines! Also, users will be able to leave messages, questions, or suggestions to us and get up-to-date information concerning AGNPS. The number is 612-589-2854. We hope to have it fully operational as soon as possible so feel free to try and call it up. If you do not get an answer, then most likely the BBS is not up and running yet. You should note that this will be a long distance phone call if you do get through.

Finally, we keep receiving requests from our users asking for a greater number of cells allowed by the AGNPS model. Therefore, we are pursuing ways of making use of extended, expanded and/or high memory in order to overcome our current memory barrier. However, you should be aware that certain memory managers, minimum computer processor requirements and/or minimum RAM requirements may be required in order to make use of any such new developments. Unfortunately, we can not possibly foresee what these minimum requirements will be at this time.

AGNPS and GIS

Geographic Information Systems (GIS) are rapidly being recognized and adopted by land managers as a valuable decision making tool. A growing application of GIS is its integration with nonpoint source pollution modeling. In particular, a considerable amount of interest has been noted in potentially linking the AGNPS model to a GIS. By integrating GIS with AGNPS certain parameters required by the model can be easily extracted and entered into the model. Advantages for using an integrated GIS-AGNPS system include: 1) elimination of considerable amount of tedious map interpretation and manual data entry, 2) more rapid watershed evaluation and testing of alternative Best Management Practices (BMP), and 3) more land can be assessed for its NPS potential and with a cheaper price tag.

Because of the large amount of interest expressed, the USDA-ARS North Central Soil Conservation Research Laboratory here in Morris, MN together with the Wyoming Water Resources Center at the University of Wyoming in Laramie are considering a workshop on AGNPS-GIS integration for watershed assessment and BMP planning. The organization for this short course is in its preliminary planning stages. To help us better plan such a workshop, we want to solicit the response of AGNPS users in order to tailor the course to better meet your needs.

As of now we are considering holding a four or five day session including lectures, watershed field work and a hands on AGNPS-GIS exercise. A preliminary outline for the workshop would consist of:

- I. AGNPS-related topics
  - A. Basic model principles
    - 1. Model capabilities
    - 2. Model limitations
  - B. Data requirements
  - C. Interpreting output
  - D. BMP planning
- II. GIS-related topics
  - A. Data sources
    - 1. Availability
    - 2. Scale
    - 3. Accuracy
  - B. Data input
  - C. GIS data manipulation
  - D. Linking GIS with AGNPS
  - E. Display and interpretation
  - F. AGNPS-GIS decision support system modeling
- III. Watershed field work/data collection
- IV. Watershed AGNPS-GIS simulation exercises

The workshop would be targeted for those users or potential users of AGNPS who also have some experience using GIS. After attending the workshop, AGNPS users should leave with a better understanding of the model and data parameters used in AGNPS that can be maintained, manipulated, and updated with a GIS.

We are further contemplating providing a 2 to 4 day short introductory course to GIS prior to the AGNPS-

GIS session. This course would provide an introduction to basic GIS concepts and principles and would be oriented towards uses of GIS in water resource management. It would provide the necessary background for continuing into the AGNPS-GIS session.

If you are interested in attending one or both of these sessions or have questions or ideas about what an AGNPS-GIS training session should consist of, please fill out the attached form and mail or FAX it to the USDA-ARS lab in Morris, MN at the following address:

USDA-ARS-MWA
North Central Soil Cons. Res. Lab.
Attn: Basil Meyer
North Iowa Avenue
Morris, MN 56267
PH: 612-589-3411
FAX: 612-589-3787

Recommended Reading

In our last newsletter (Fall 1992) we listed the report "Evaluation of the Lumped Parameter Models DR-USLE and SEGMO with the Distributed Model AGNPS" by Finney, V. L., Banasik, K., Needham, S. and Young, R. A., was available upon request. However, shortly after the release of our Fall 1992 newsletter, we received a request from the authors of the evaluation to hold off sending any copies of the evaluation until it was finalized. Therefore, draft copies are not available from us upon request as stated in the Fall 1992 newsletter. Also, we do not know when the evaluation will be finalized but will inform you through our newsletter.

User's Paragraph

We were informed that the University of Idaho's Department of Geography has developed an interface between AGNPS 3.65 and PC ARC/INFO, the PC version of ARC/INFO. For additional information contact:

Peter Jankowski
Department of Geography
University of Idaho
Moscow, ID 83843
208-885-6452

We appreciate hearing how AGNPS is aiding in your work and/or research. Please inform us of your work involving AGNPS so we may include it in our newsletter to inform others.

Training

Federal agencies, state agencies, watershed districts, etc. interested in training sessions to train AGNPS users should contact Basil Meyer at 612-589-3411. State SCS personnel should coordinate scheduled training through their regional technical center.

Acknowledgements

The AGNPS Newsletter is a cooperative effort supported by various agencies, including the USDA Soil Conservation Service (SCS), the Minnesota Pollution Control Agency (MPCA), the Legislative Commission on Minnesota Resources (LCMR) and the Environmental Protection Agency (EPA). The editors of this newsletter are Basil Meyer and Leah Nelson. The intent of this newsletter is to inform non-AGNPS users of the AGNPS program and to keep current users of AGNPS abreast of current developments and facilitate use of the model.