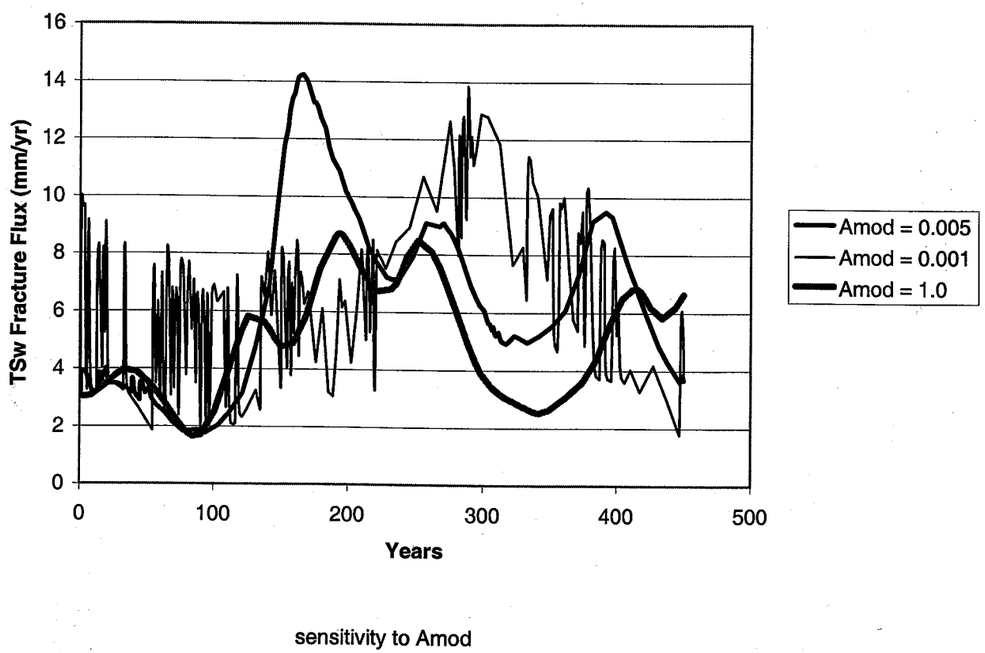
7/14/03 Greg Walters

I performed a sensitivity analysis to elucidate the source of the spikes in the transient simulation fracture fluxes. In order to recreate the peaks in the fluxes at node 30, (GW 7/29/03) I had to reduced the matrix-fracture interaction in both the TCw and PTn using the area mod parameter in Metra. The peaks begin to appear when Amod is reduced to 0.005 and become very pronounced at Amod = 0.001 as illustrated below




sensitivity to Amod



7/31/2003 Greg Walters

To prepare and (Greg 7/31/2003) an update of my analyses, I constructed an excel spreadsheet to evaluate the effect of various formulations of the fracture-matrix conductance term. (D:/TSPA/tsf-status_report/compression-active-conv.xls)

Also, modified multiflo simulations to use fracture permeabilities close to those reported in calibrated properties model report MDL-NBS-HS-000003 REV00 Only change kf for TCw, PTn and TSw. New values in steady state input file steady-mtg-revkf.dat. Ran steady state simulation and put restart data in ~~revkf~~ (GW 7/31/03) revkf.int.

Created transient simulation with revised kf in revkf-active-20ma.dat

Change files used to compute fluxes to tcwll-rev.txt, ptn24-rev.txt, tsw35-rev.txt processed fluxes in to revkf-flux.txt,

8/1/2003 Greg Walter

Revised fracture & matrix properties to match base case 1d calibrated values in Calibrated Properties Model AMR.

Created new steady state using these files in multiflo model(s)/1d transient/ simple

steady_with_revkf.dat

and transient run with

revkf_active_2comm.dat

The resulting fracture fluxes are shown in the graph on page 79 which indicates episodic flow in the TCw and, to a much lesser extent, in the PTn, but not in the TSw.

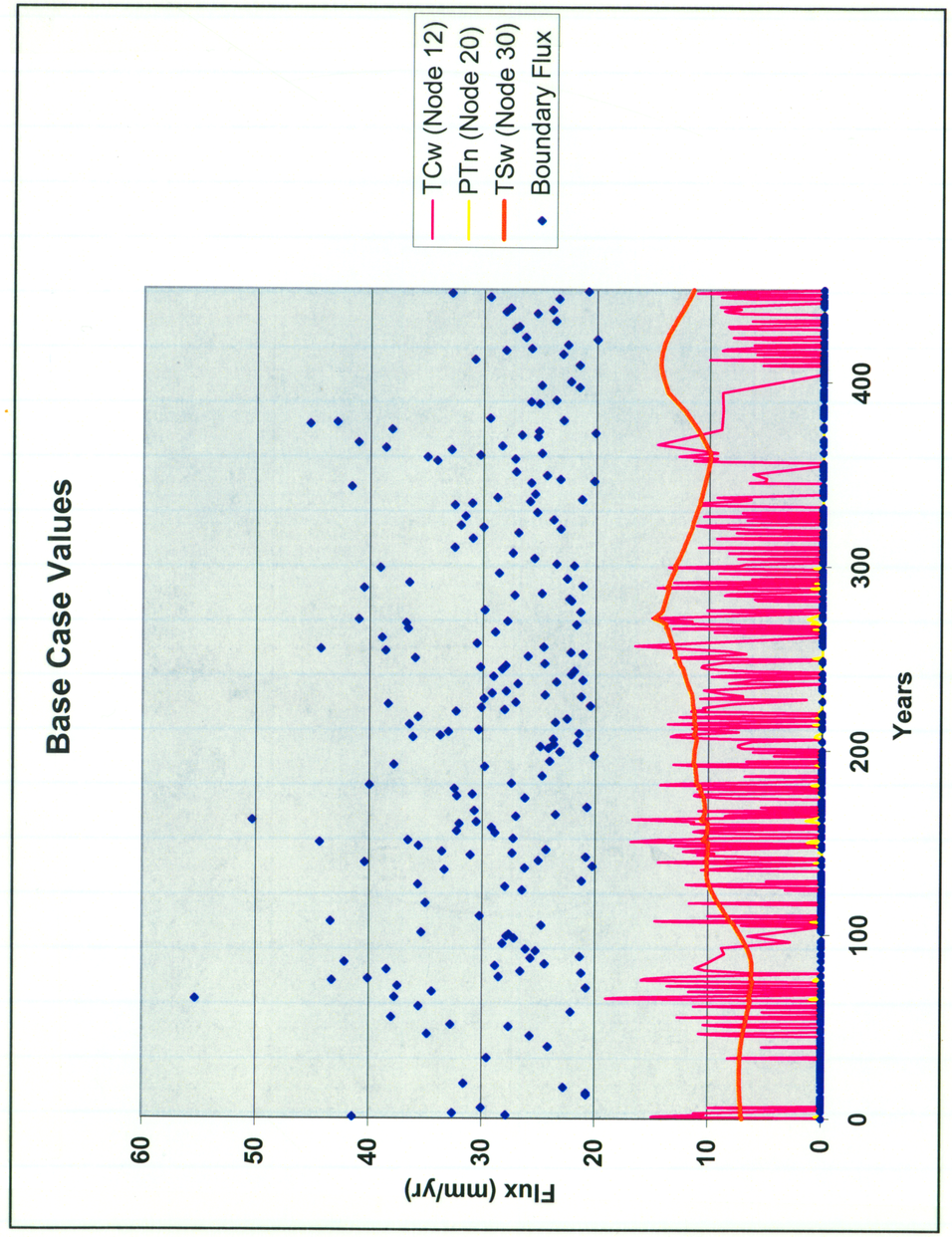
Created a new simulation with Anod in PTn set at 0.1

input file → revkfPTnAn.1.dat

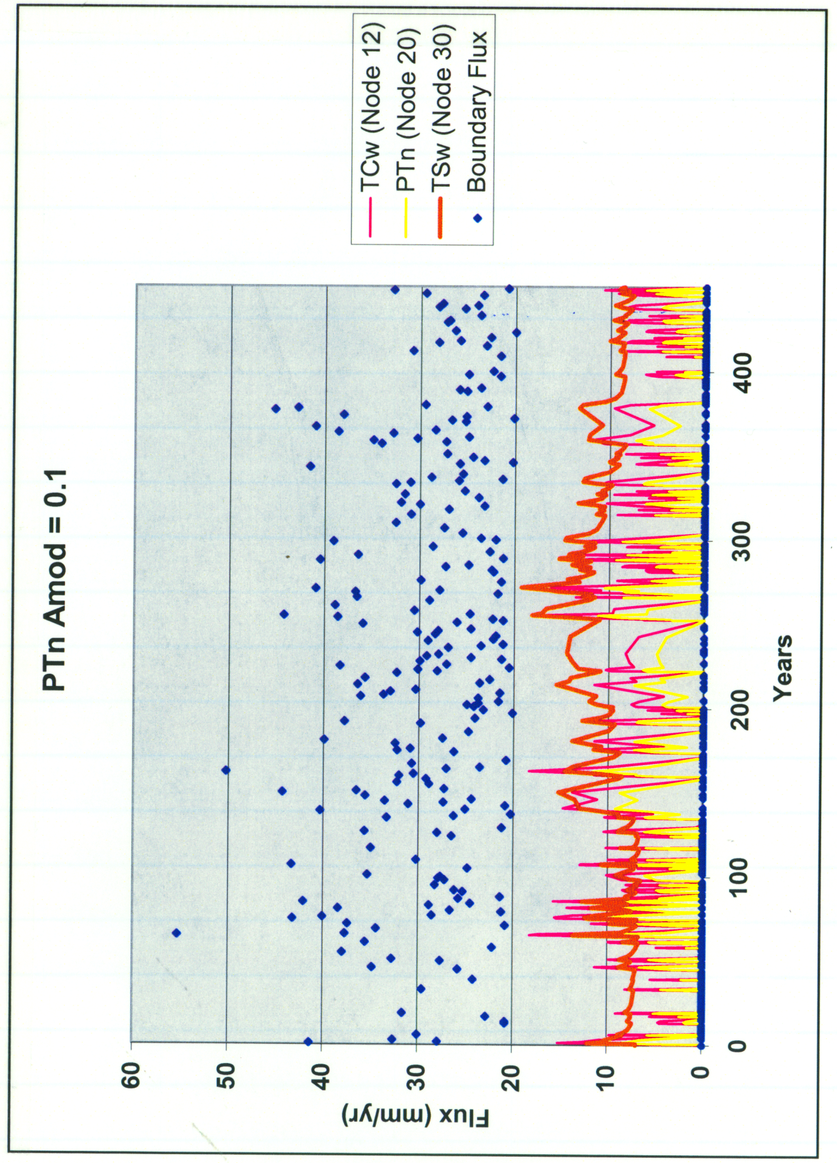
The results are shown in the graph of fracture fluxes on page 80. The reduction in Anod for the PTn resulted in episodic flow in the TSw



Greg 8/1/2003



8/1/2003 Cw



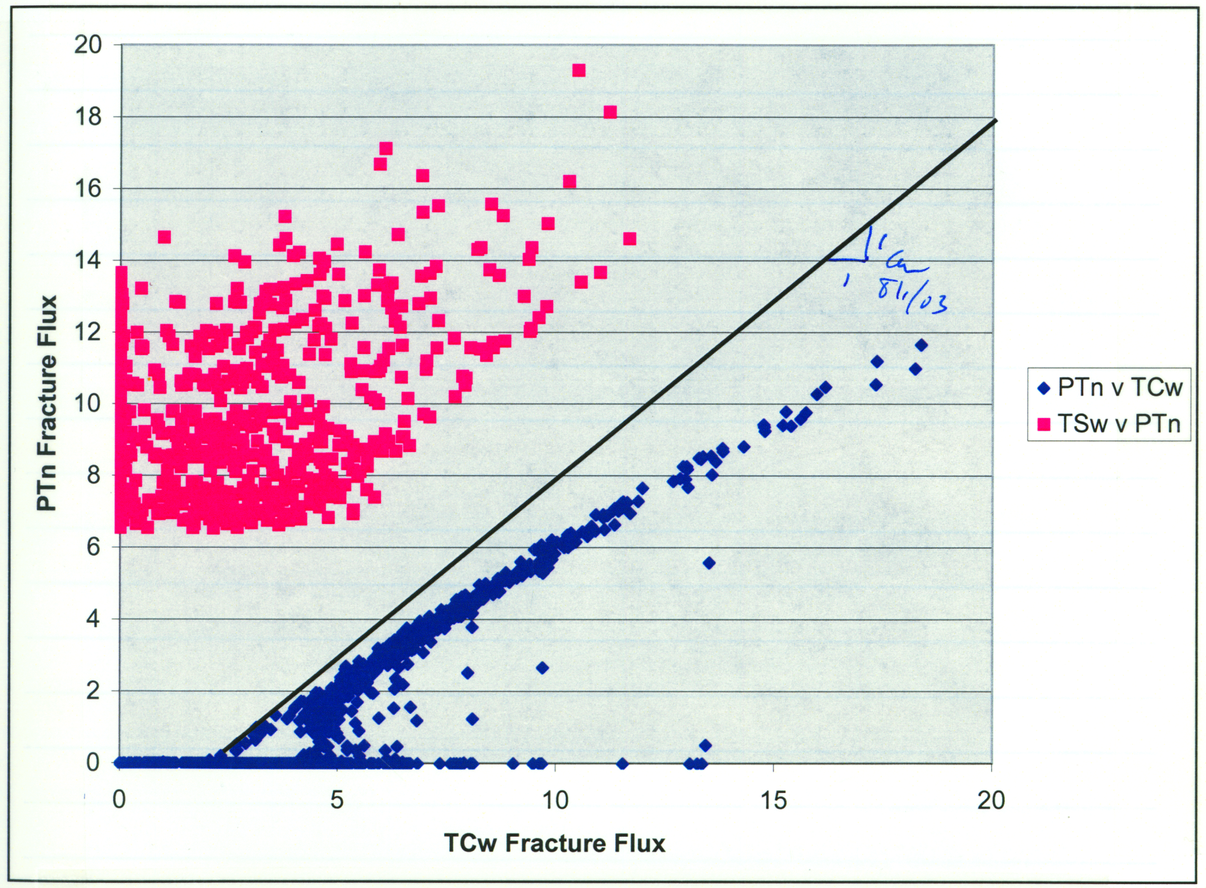

Amod_0.1 Chart 1

d:\multiflo\1dtransient\simple



8/1/2003

A correlation between the fracture fluxes in the TCw and PTn, and between those in the PTn and TSw is shown below. 8/1/03 Cw
(TCw = Node 11; PTn = Node 20; TSw = Node 30)
The onset of episodic flow in the PTn occurs at a TCw fracture flux of about 2.5 mm/yr

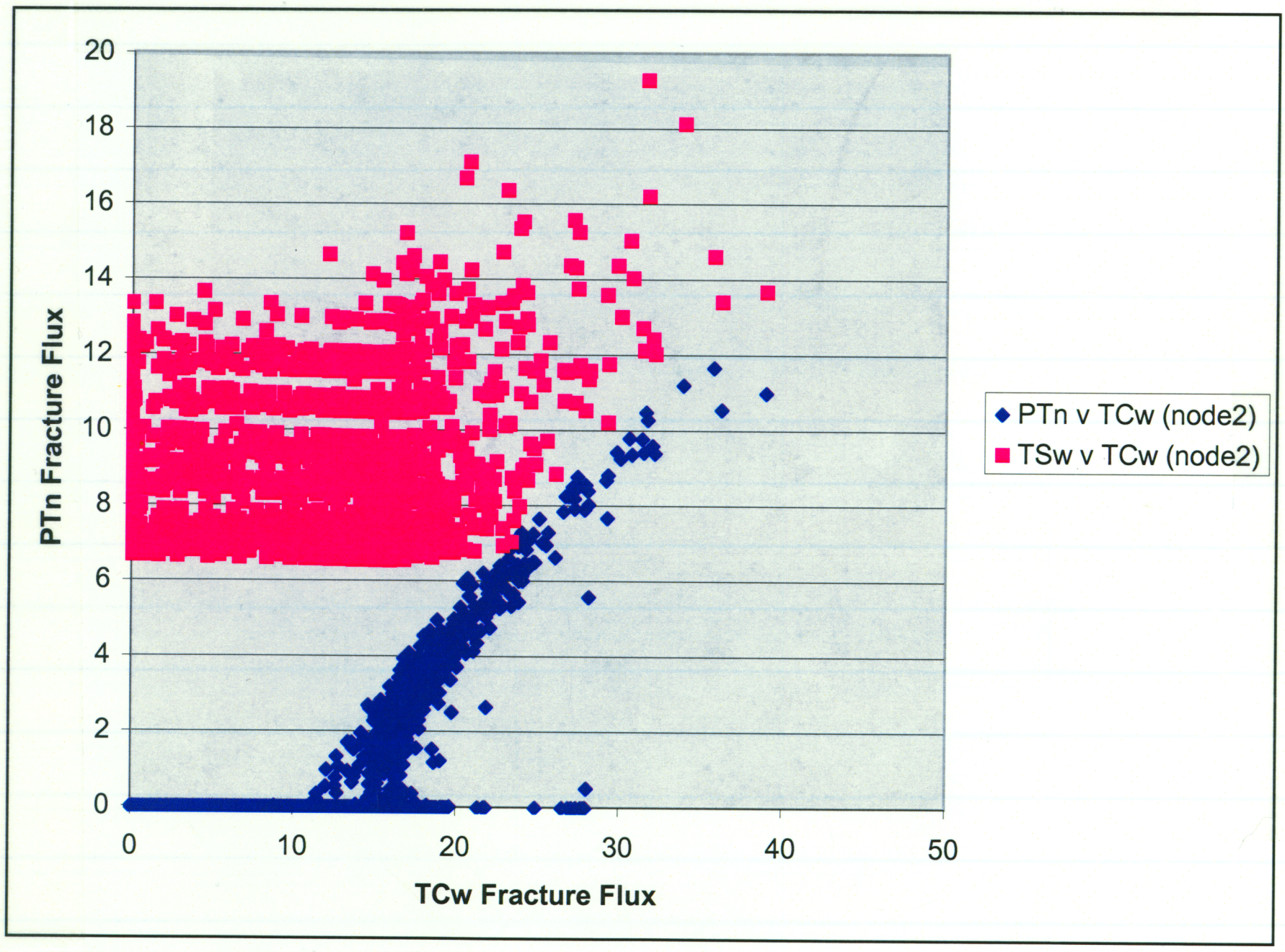



d:\multiflow\1dtransient\simple

Amod_0.1 Chart 3

8/1/2003 Ca

The graph below shows the correlation between PTn and TSw frax. fluxes at the frax flux at node 2 in the TCw which closely track the bndr flux. 8/1/03 Episodic flow in the PTn starts at a bndr flux of about 11 mm/yr



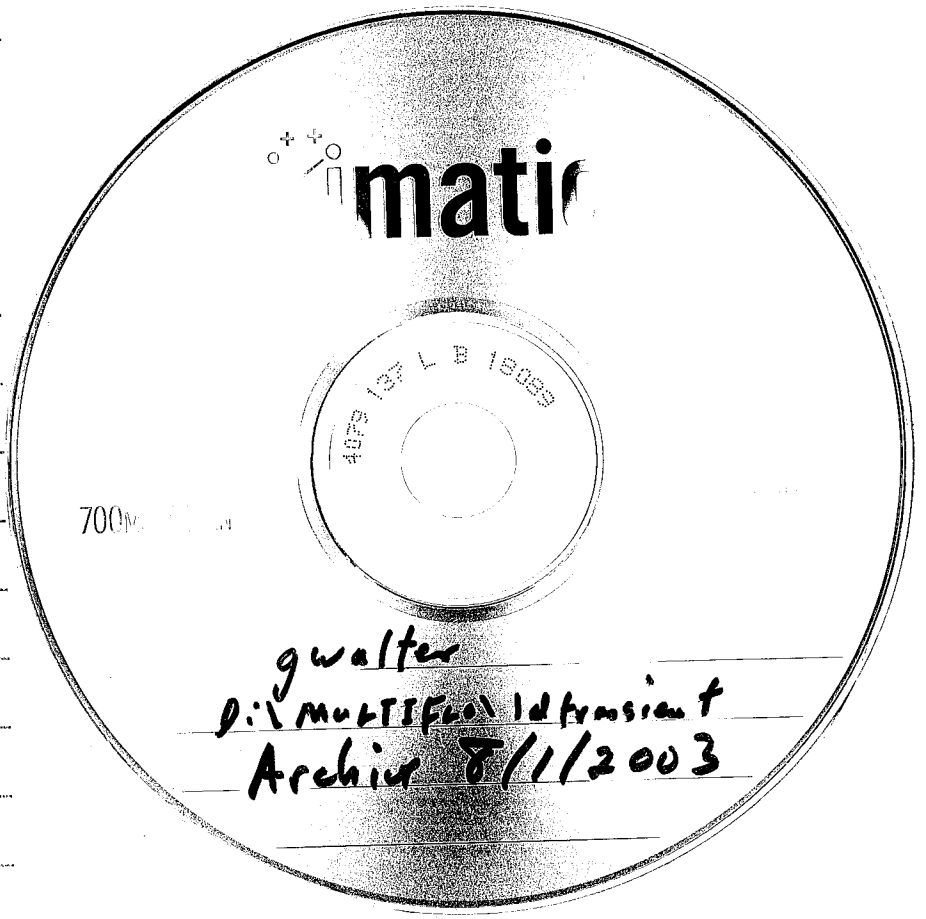

d:\multiflow\1dtransient\simple

Amod_0.1 Chart 4

Episodic flow in the TSw starts at about 20 mm/yr

5/1/2006 Lyn Mullins

The attached CD is file archive as of August 1, 2003
Fortran codes, data, and output are on CD




I am closing this notebook as of May 1, 2006

## ADDITIONAL INFORMATION FOR SCIENTIFIC NOTEBOOK NO. 585

| | |
|---|---|
| **Document Date:** | 04/01/2003 |
| **Availability:** | Southwest Research Institute®<br>Center for Nuclear Waste Regulatory Analyses<br>6220 Culebra Road<br>San Antonio, Texas 78228 |
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# GEOSCIENCES AND ENGINEERING DIVISION

## SCIENTIFIC NOTEBOOK REVIEW CHECKLIST RECORD

Scientific Notebook No. 585 Project Numbers: 06002.01.252

Accomplished

- [✓] 1. Initial entries per QAP-001
- [✓] 2. Dating of entries
- [✓] 3. Corrections (crossed out, one line through w/initials/date)
- [✓] 4. No White out used
- [✓] 5. Page number visible on copy or original notebook
- [✓] 6. In process entries per QAP-001
- [✓] 7. Figure information present
- [✓] 8. Text readable
- [N/A] 9. Copyrighted material is identified
- [✓] 10. Permanent ink or type only
- [✓] 11. Signing of entries (not required on each page)
- [✓] 12. Electronic media in the scientific notebook properly labeled
- [✓] 13. NRC Supplementary Scientific Notebook Questions are addressed.
- [✓] 14. The independent, two person verification required by AP-019, Section 5.2.1.2(b) is complete

Any discrepancies must be resolved before notebook closeout.

==========

I have reviewed this scientific notebook and find it in agreement with QAP-001.

Manager's Signature 11/20/07 Date

Attach this completed form to the last page of the notebook.