308
Scientific Notebook # 372

Q200005050002

CENTER FOR NUCLEAR WASTE
REGULATORY ANALYSES

CNWRA
CONTROLLED
COPY 372

Project No. 20.01402.761/2
Total System Performance
Assessment & Integration

Sensitivity Analysis on The TSPA KTI.

P.I.: Sitakanta Mohanty.

Analyst: Yichi Lu.

Initial Entries

The objective of this task is to implement sensitivity analysis methods and perform scoping analyses for model implementations in the TPA code. The scope of these studies and analyses are included in the FY1999 OPS plan. The outcome of the scoping analyses were incorporated in the Software Requirements Description developed for the TPA Version 4.0 Code.

8/14/2000

10-6-99 Y.L.

Finished /nfenv/my_nfenv/my_nfenv.f.

However, the result (temp. field) does not seem to be right. The temp. too low. need to compare with /nfenv/nfenv.f to see what is wrong.

The CCDF curves for no-noise look good.

Need to find out why CCDF for noisy does not look good.

10-8-99 Y.L.

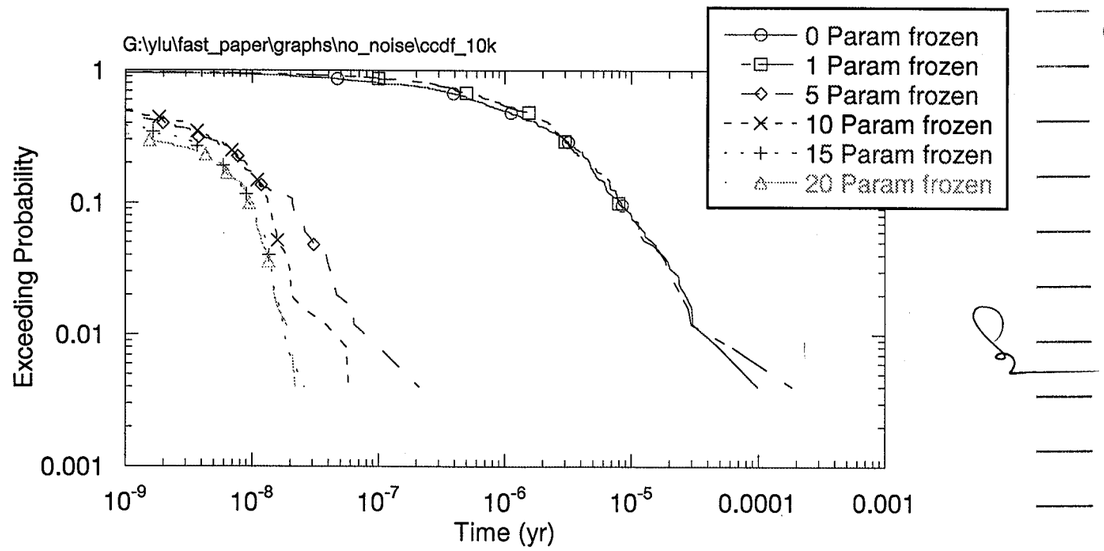
One serious reason that noisy CCDF does not look good is that I used FreezeParam for log-typed data also, but I should use logFreezeParam instead.

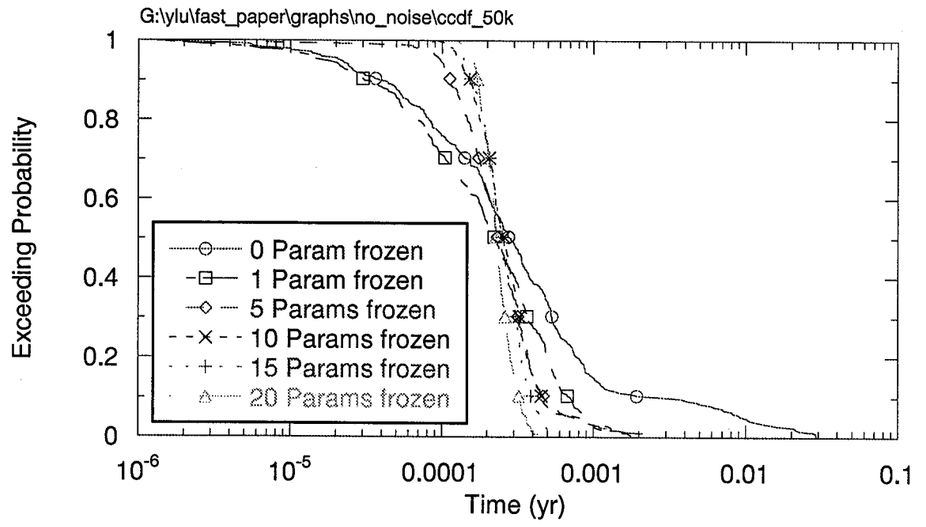
fixed all tpa.inp files. Submitted 5 frozen and 10 frozen. 1 frozen is right.

need to submit noisy, 15 frozen and 20 frozen as well as no_noise/20 frozen.

Then I should be able to finish the paper.

Collected info. on multiphase flow. Need to write something for Sitakanta.





10-11-99 Y.L

Worked on Nfenv.f. talked with Rob over the phone. got it right when comparing ~~my-nfenv.f~~ Y.L. my-nfenv.f results with nfenv.f results. They were the same. But the results seem to be coordinate system dependent. Need to check this. !!!

Sitakanta wants to finish the FAST paper.

10-12-99 Y. L.

Handed a copy of FAST paper to Sitakanta. He mentioned several things.

(1) did we mention why we calculate 50k, 10k, what is the justification ?

(2) does the results section match the section 2 which introduces the TPA code ? How do they corespond with each other ?

(3) Tables 5, 6, 7, do some thing similar to Sensitivity report. Aug. 1999

(4) run TPA with 10K as the maximum TPI.

(5) replave $\langle \partial y/\partial x \rangle$ with some thing else?

(6) submit FAST paper and Morris paper at the same time.

(7) Fig 2. try to do it similar to UCSD people.

(8) Is Fig 7 justifiable to be in the paper ?

asked Marty to give me a latest copy of Morris paper.

10-13-99 YL.

I think we need to discuss in section V (1) mechanism of WP degradation for both long term (50 kyr) and short term (10 kyr); (2) mechanism for radionuclides reaching receptor location.
The fig 7 does not seem to be necessary.
Mentioned fig 7 to Sitakanta. He likes it.
So it stays.

10-15-99 YL

Received a copy of Mario's paper from Marty.
Started reading. Bring it home.
A latest copy of FAST paper sent to Sitakanta.
When yr = 10 kyr, omited 15 frozen data. It is very close to 10 frozen and 20 frozen

10-16-99 Y.L.

read and commented on the Morris paper.
also ran nfenv.f and my-nfenv.f

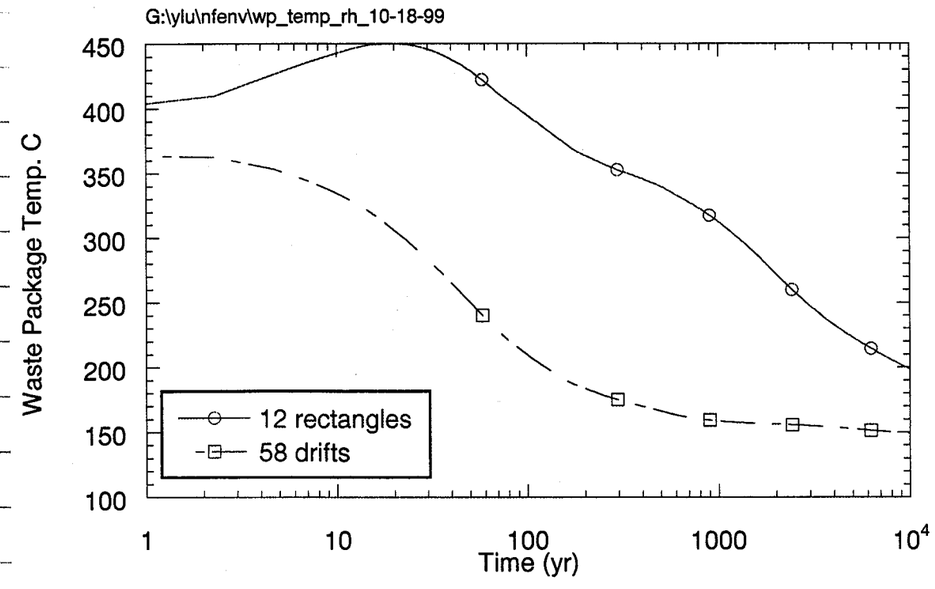
worked on the FAST paper. Received comments from Sitakanta.

10-18-99 Y.L.

Worked on the FAST paper. Discussed some issues with Sitakanta.
Also talked to Marty about Morris paper.

According to Sitakanta, someone else is also work on nfenv.f, temp. field. I'd have to work faster. to be able to work on it at all.

The figure shows the results I got so far. EDA II design resulted in lower temp. But the temp. value still too high. The reason EDA II had lower temp. probably due to more # of drifts.



10-18-98 YL

The temp. in the figure on page 9, 10-18-98, is quite high. Spent whole looking for problems.

Received repeated warnings from Sitakanta that we may lose this work.

10-20-98 Y. L.

New results for the temp. in each ~~area~~ Y.L. subarea.

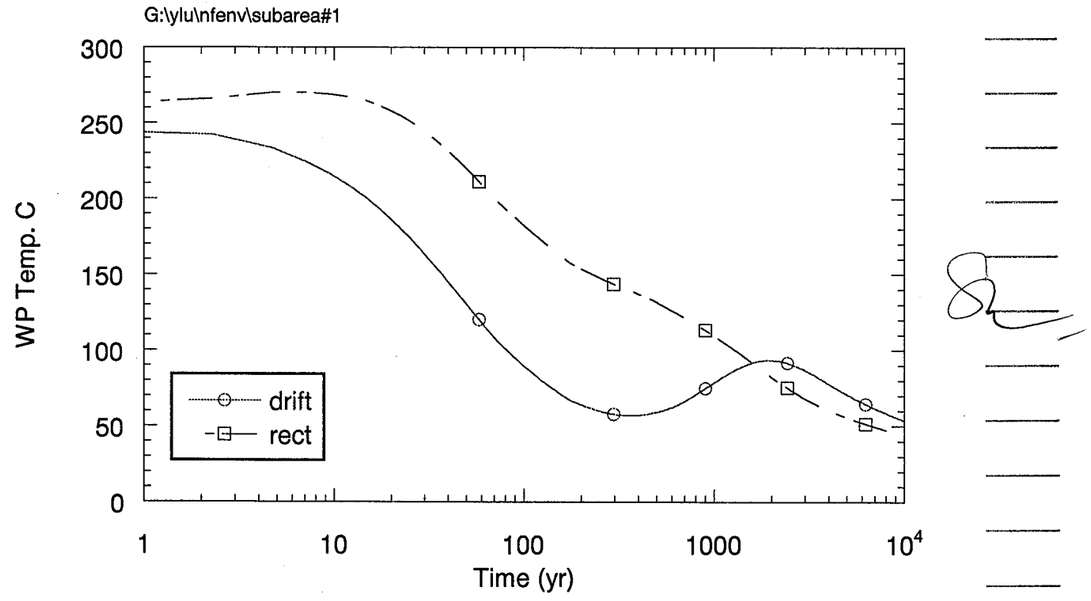
In the subarea #1 the difference is quite big, due to the small difference between Xyisa(i) and Xcc(j)

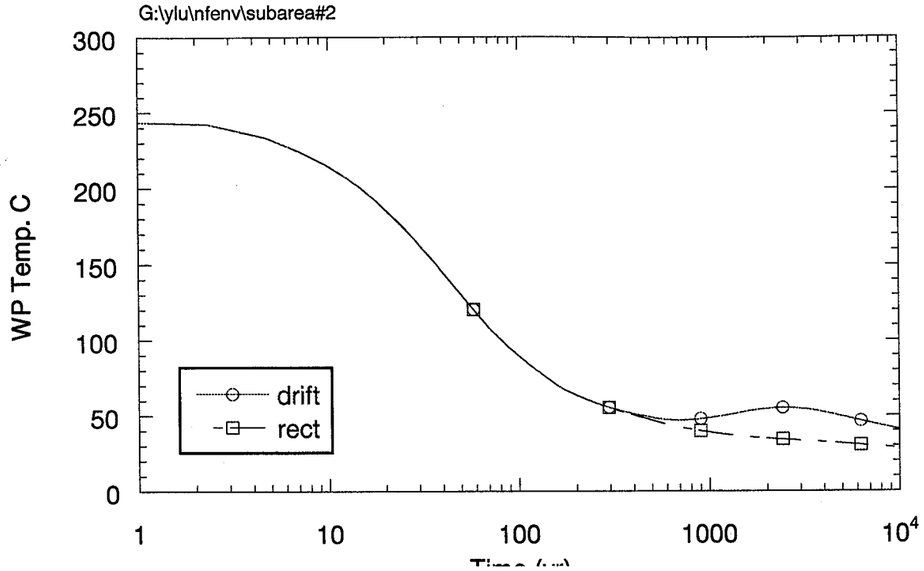
For the 58 drifts, there is a ripple between 1000yr and 10,000 yr.

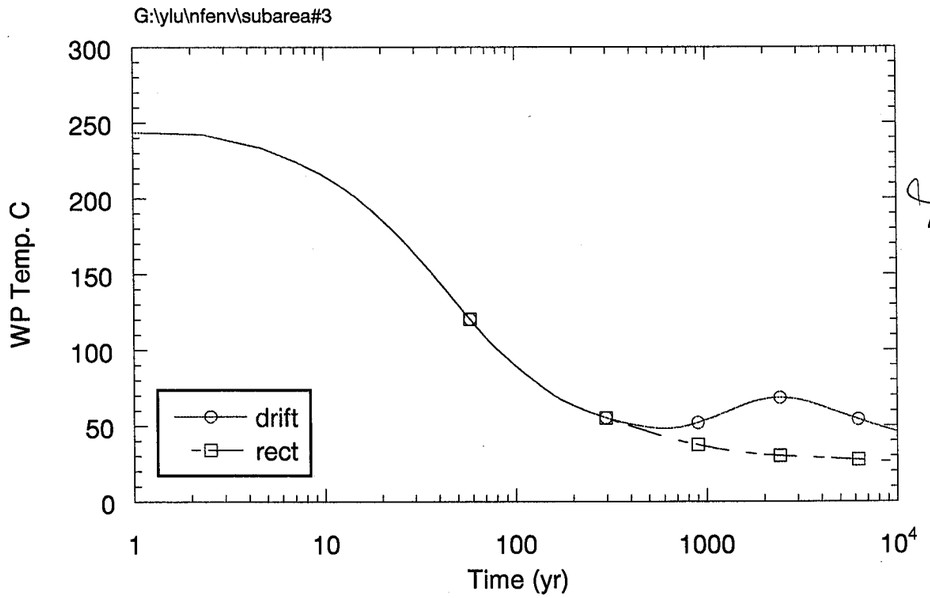
Sitakanta gave me some of his comments on the FAST paper, and suggested to plot temp. between drifts.

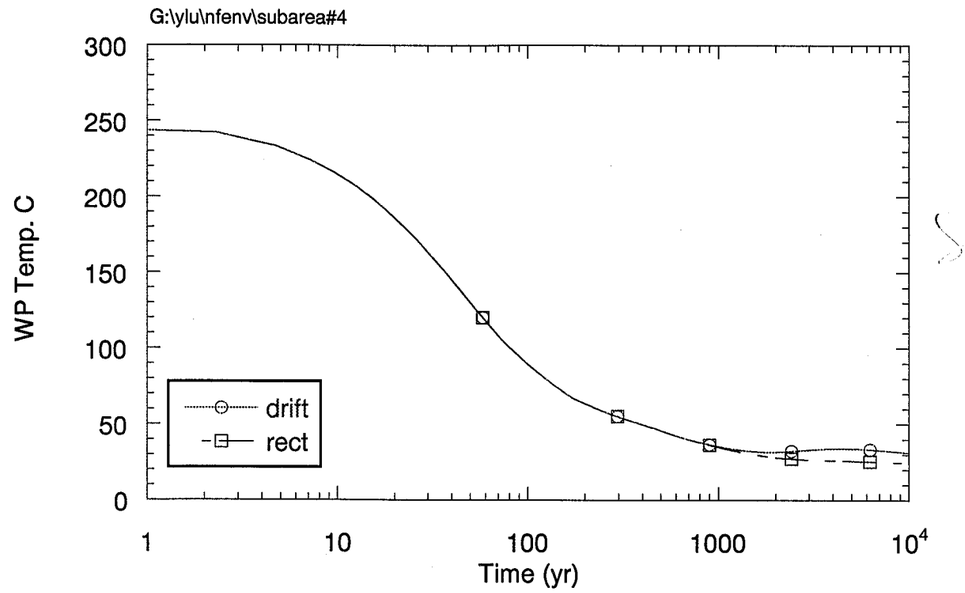
Figures in G:/ylu/nfenv

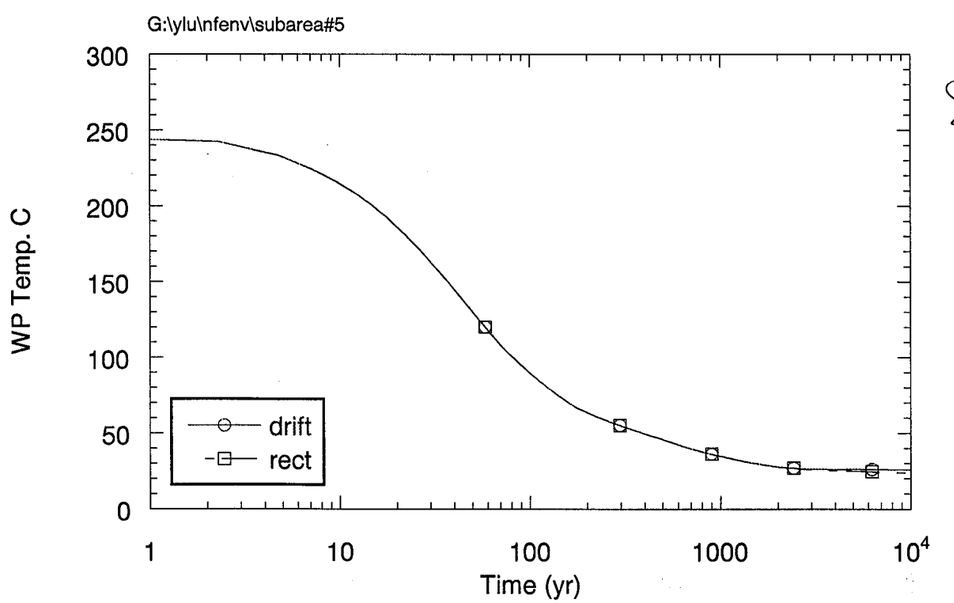
TPA 3.2.3 : /solapps/cnwra/A-tpa.3.2.3

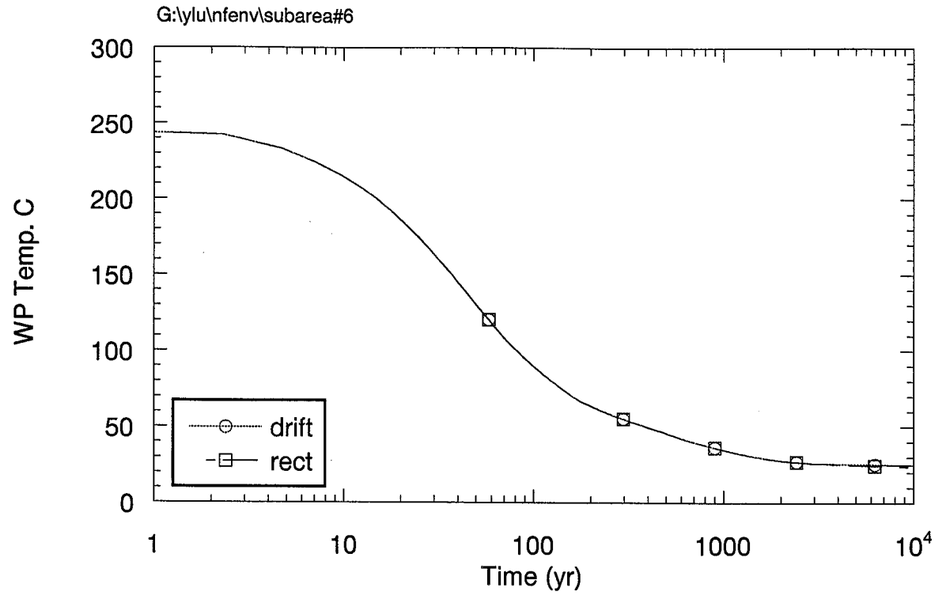


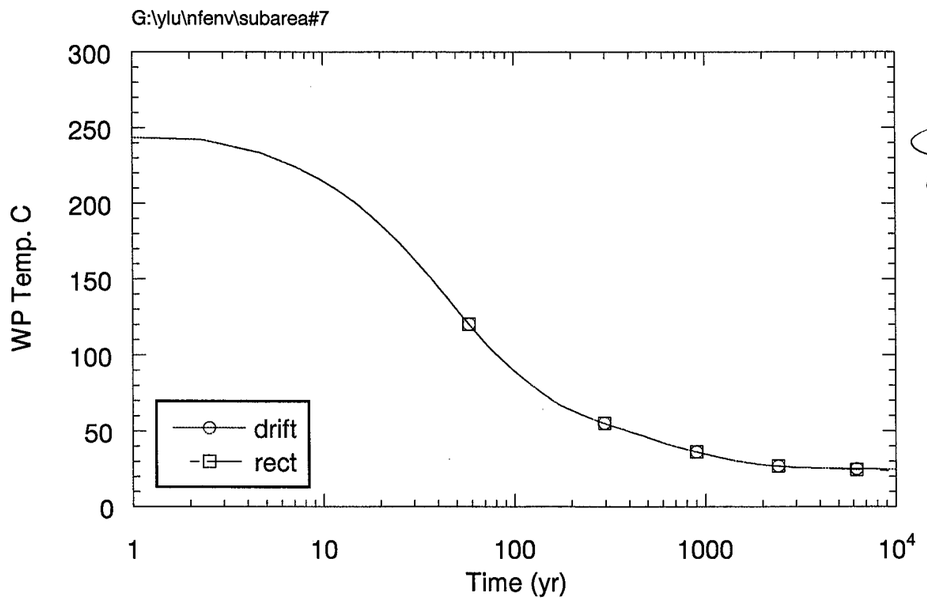

G:\ylu\nfenv\subarea#2
WP Temp. C
300
250
200
150
100
50
0
drift
rect
1
10
100
1000
10^4


G:\ylu\nfenv\subarea#3
WP Temp. C
300
250
200
150
100
50
0
drift
rect
1
10
100
1000
10^4
Time (yr)


G:\ylu\nfenv\subarea#4
WP Temp. C
300
250
200
150
100
50
0
drift
rect
1
10
100
1000
10^4
Time (yr)


G:\ylu\nfenv\subarea#5
WP Temp. C
300
250
200
150
100
50
0
drift
rect
1
10
100
1000
10^4
Time (yr)





10-22-99 Y.L.

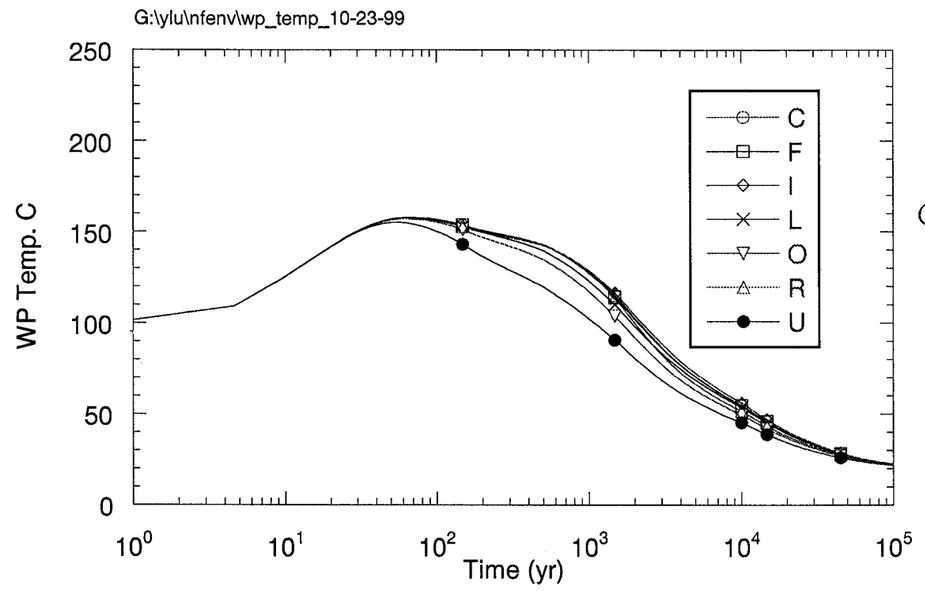
Spent whole day on the FAST paper.
Had a talk with Sitakanta at about 6:00 pm.
Need to find a time to sit down with him to finish the paper.

10-23-99 Y. L.

Worked on nfenv.f.

find a bug in /ylu/nfenv/doeva-dev/~~nfenv.f~~ nfenv.f Y.L. 8/14/2000

corrected it. reproduced fig. 3-4 of CNWRA 99-002



10-25-99 Y. L.

Proved to Sitakanta that /ylu/nfenv/doeva-dev/my-nfenv/my-nfenv.f is right. by showing that if the same data points as used in TPA 3.2 are used in my-nfenv.f, same results as on page 16.

calculated rock, wp temp. for old TPA 3.2 and new EDA II. Also ~~EA~~ Y.L. EDA II but without backfill. 8/14/2000

files ~~same~~ Y.L. saved in G:\ylu\nfenv\new-drift_10-25-99

10-26-99

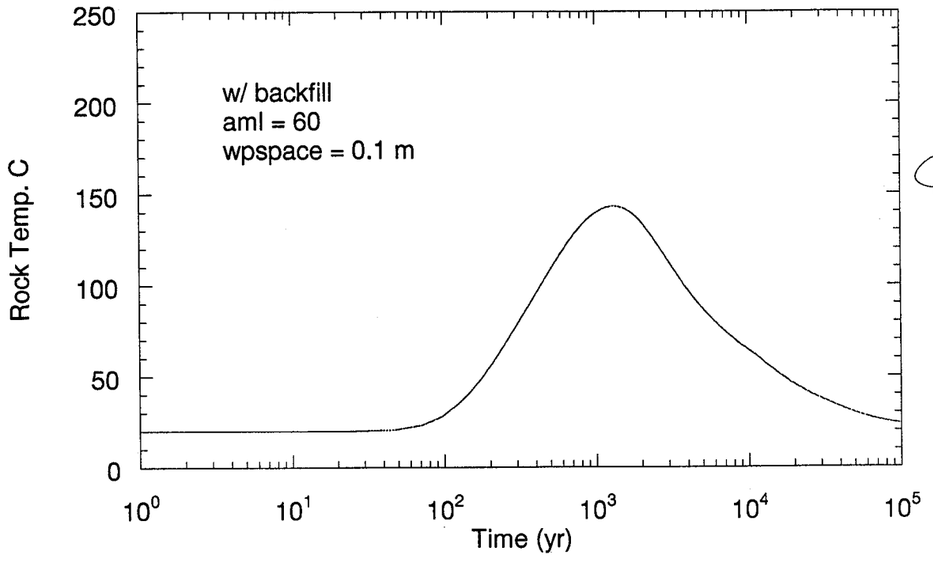
Had a talk with Sitakanta in the morning about papers and temp. field.

He wanted me to calculate temp. in the middle of the whole repository area and the temp. field between drifts.

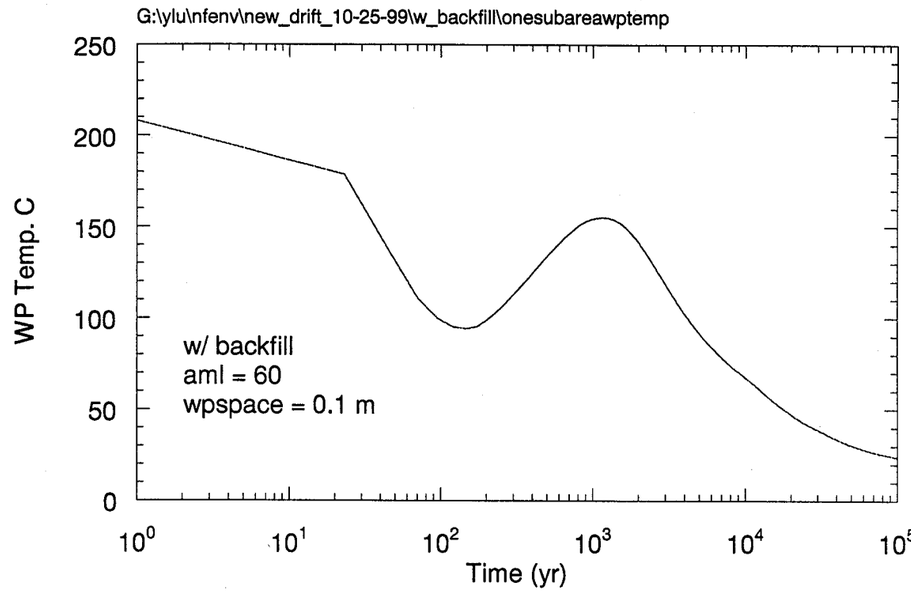
Finished ~~on~~ first job. work on the second one. YL. 8/14/2000

files in G:\ylu\nfenv\new-drift_10-25-99\w-backfill\w-o-backfill\onerect or onesubarea

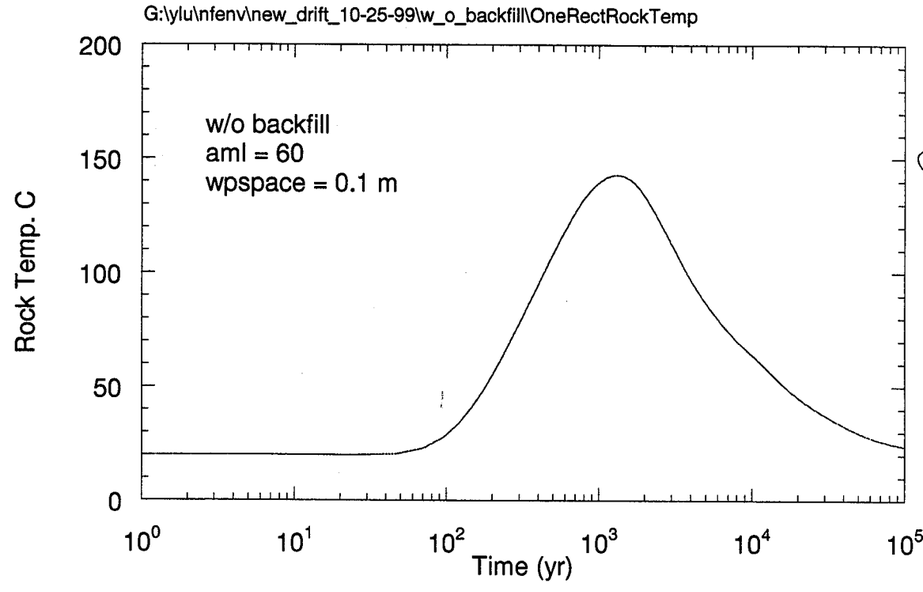
G:\ylu\nfenv\new_drift_10-25-99\w_backfill\OneSubAreaRockTemp

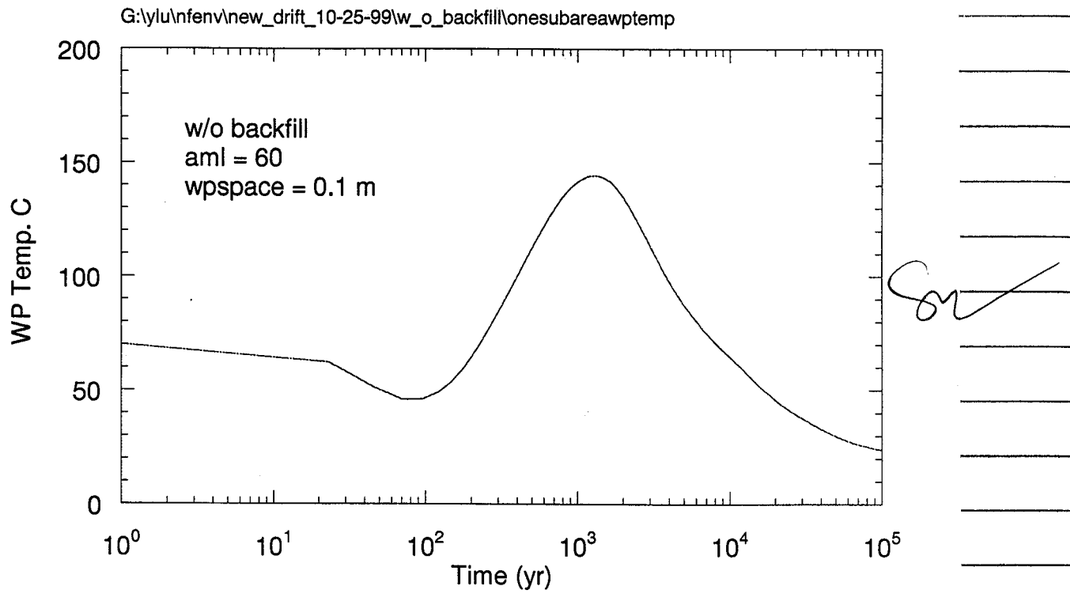


G:\ylu\nfenv\new_drift_10-25-99\w_backfill\onesubareawptemp



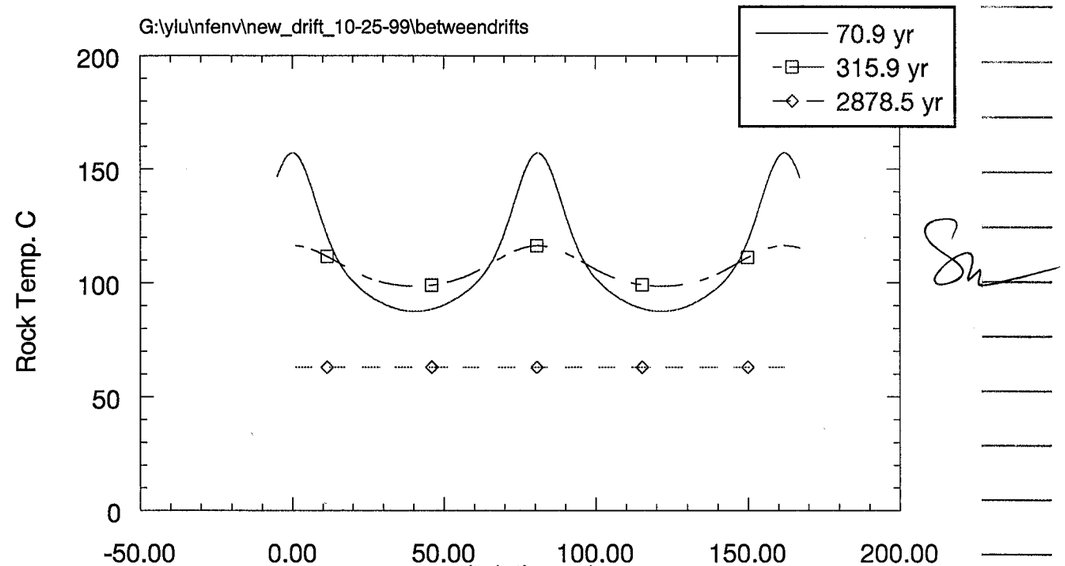
G:\ylu\nfenv\new_drift_10-25-99\w_o_backfill\OneRectRockTemp





10-27-99 YL

Plotted temp of drift wall between drifts.
z = 2.5 m, x in the middle of drifts.



Talked to Sitakanta. Need to determine the CPU time needed to do the temp. calculation. !!!
Finish the temp. work.
Finish FAST & Morris paper.

Then start ABCUS.

Also worked on FAST paper.

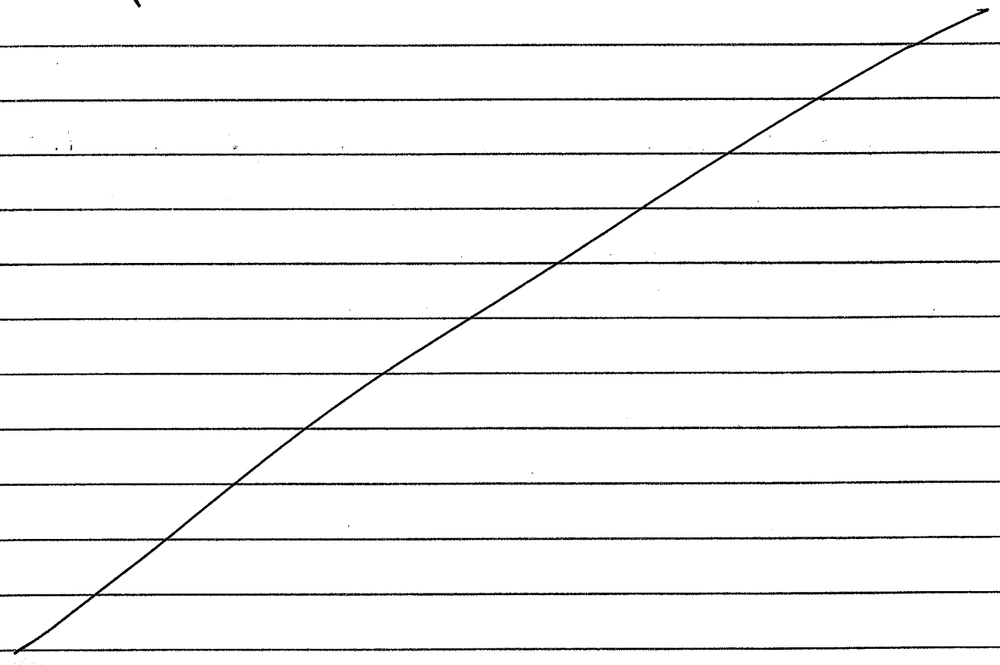
10-27-99 Y.L.

Finished a report about nfenv.f / temp.
based on /nfenv/doeva-dev/my-nfenv/my-nfenv.f

received a Morris paper copy from Marty.

Took a box of ABAQUS books from Maria's office, left a note on her desk. Start reading ABAQUS book.

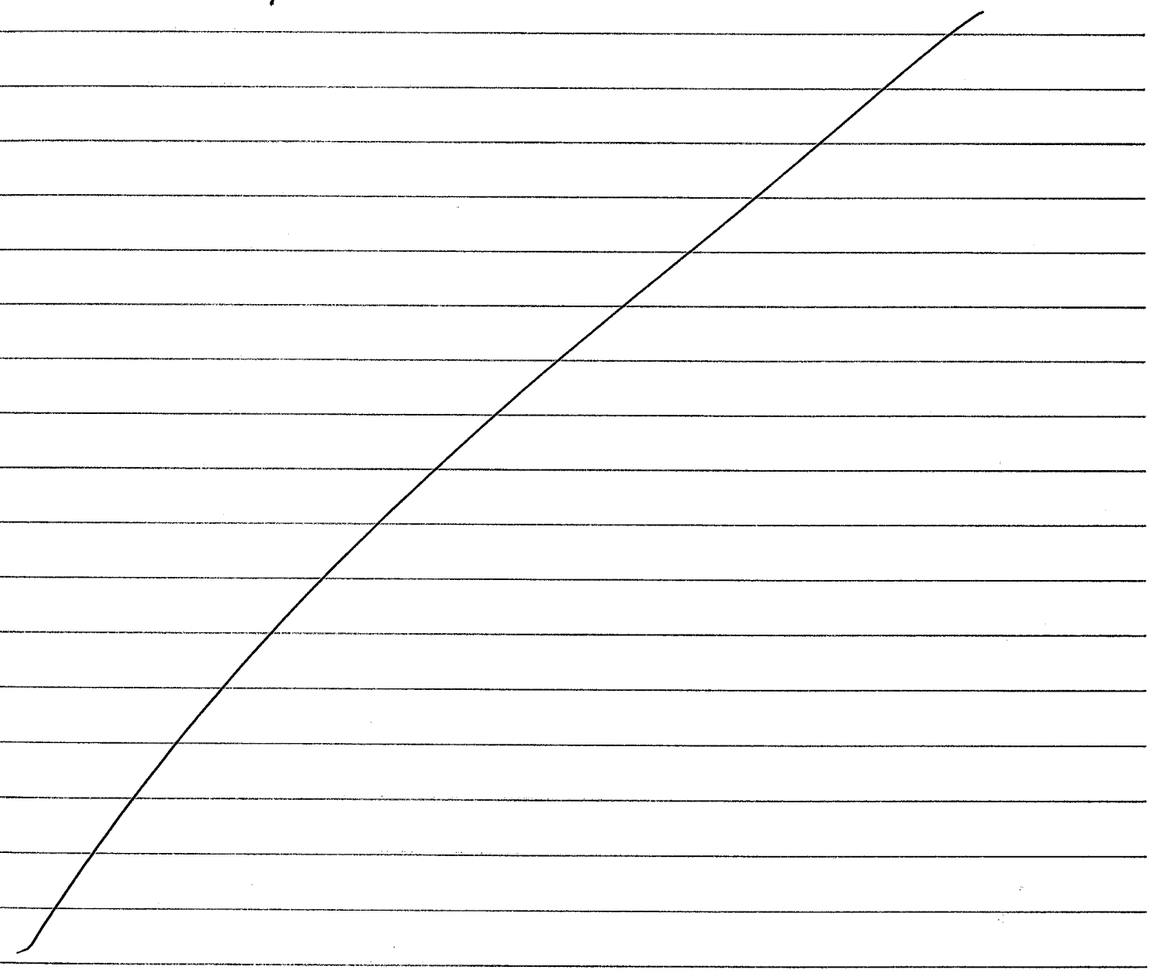
Told Sitakanta about the time needed for temp. calculation ~ 0.05 sec for 200 it's and one subarea. my-nfenv.f can calculate both total time and individual time for subarea temp. calculation.



11-1-99 Y.L.

Read and commented on Morris paper.

Started working on modifying the my-nfenv.f.
Basically try to place arbitrary number of drifts inside the repository with arbitrary distance between drifts.
made a directory : nfenv/myarea.
The file : cornors.dat is supposed to cover the whole repository area.



11-2-99 Y.L.

Test TPA 3.2.3 for Ron

The original files in tpa3.2.3.

Test directories : /Rons Test / test 1

Some parameters:

used /ylu/TPARU11/lhs.out

① Latin Hypercube Sampling (yes = 1, no = 0)
2

② Nset
2

③ Number Of Realizations
494

④ Start
1

⑤ Stop
0

⑥ Duration
1.0e4

⑦ Max
5.0e4

⑧ Number
101

⑨ Ratio
100.0

⑩ Number
100

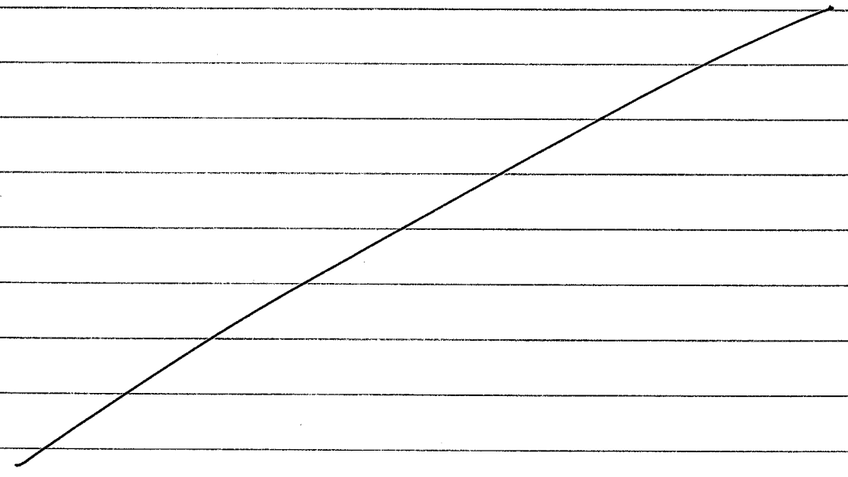
⑪ Ratio
100.0


```
vulcan% cp: cannot access /home/ylu/TPARUN11/data/drythick.dat
open: [1018] can't find 'old' file
logical unit 52, named 'drythick.dat'

Got this message when ran tpa3.2.3.
Actually there is a file /data/dry_thick.dat in /data.
After copying dry_thick.dat to drythick.dat. tpa.3.2.3 ran again.

Notice in .cshrc.local:

setenv TPA_TEST /home/ylu/TPARUN11
setenv TPA_DATA /home/ylu/TPARUN11

If look at tpa.3.2.3/data, there is a file: drythick.dat.
In other words, in tpa3.2, the file is named as dry_thick.dat.
But in tpa3.2.3, it is named as drythick.dat.

Yichi Lu, 11-2-99, 2:40pm.
```

Morris paper with my comments was given to Marty.

FAST paper given to Sitakanta.

TPA 3.2.3 is running.



11-3-99 Y.L.

Worked Whole day on /nfenv/myarea/drift.c and other files.

The purpose of the work is to be able to place arbitrary number of drifts in the repository.

Indicated to Sitakanta that the old repository area wouldn't be able to hold 58 drifts, 81 m apart. Because the area is not long enough.

The area is EDA II is longer than the old one.

Sent an email to Helpdesk to ask to install Exceed 6.1 so that I can run ABAQUS.

11-5-99

Exceed 6.1 was installed.

Had a discussion with Marty on the Morris paper.

Helped Sitakanta for his presentation of Morris paper on 11-10-99.

11-8-99 Y.L.

Worked on TPA 3.2.3.K. output from it is different from TPA 3.2.
Specifically, I used lhs.out from TPARUN11. and saved in Ronstest/test1.
The gwpkdos.res are different. 1 hour.

worked on presentation that Sitakanta is going to present on 11-10-99. 4 hours

ABAQUS 4 hours
Total 9 hours

11-9-99 Y.L.

Michelle created an account for me for the SGI machine.
Goodluck taught me about ABAQUS, and loaned me 4 copies of ABAQUS manual 5.8

created /pluto/home2/ylu/abaqus/tutorial/beam.cae, beam.jnl

re-organized directories
/abaqus/tutorial/beam, hinge.

at about 4:30pm, Sitakanta wants to modify log transform for Morris. Only do log transform for log-type variables. Y.L. 8/14/2000

Meet Sitakanta 11-10-99 afternoon to talk about the FAST paper.

Morris/FAST 2 hours
ABAQUS 7 hours.

11-10-99 Y.L.

Helped Sitakanta prepare his talk in the morning
3 hours.

After noon discussed the FAST paper. We decide to run 10 kyr max TPI, instead of using 10 kyr as 50 kyr by-product.

Also need to investigate further the standardizing & logarithmic transform further.

6 hours

11-12-99 Y.L.

copied TPARUN11 to TPARUN71 to run max TPI 10kyr.

items changed in tpa.inp:

Seed For Random Number	1833 10452.0
Maximum Time [yr]	1.0 e 4
Number Of Time Steps In Compliance Period	201
Number Of Time Steps After Compliance Period	0
Ratio Of Last To First Time Step After Compliance Period	0.0

then:
~smohanty/A-yichi/tpa.e > tpa.out &
3 hours

Checked tpa 3.2.3.k.
The tpa.inp files in /TPARUN11 and Rons Test/test1 are virtually the same. But the file gwpkdos.res are different. Discussed this w/ Ron, sent email. Ron agreed to give me a list of files to look at.
1 hour

ABAQUS 2 hours

Worked on checkres.f and ettths.f 2 hours

11-15-99 Y.L.

The job of TPARUN 71 is finished.
The results in gwpkdos_c.res of TPARUN71 is different from that of TPA RUN 11.
Therefore, the max TPI time does have effects on 10 kyr results.

Created a file: FAST/Morris_10K_p=8_d=2_new that lists the top 20 params based on /TPARUN71/gwpkdos_c.res, using $\sqrt{u^2+\sigma^2}$ as the criterian

created two subdirectories: TPARUN72, 73 to run /FAST/lhs.out_fastlhs4_Morris_p=8_d=2_new_no_noise

Had a discussion w/ sitakanta
Apparently his concern about logrithmic transform is ~~about~~ Y.L. before the TPA run is done, which I already properly ~~trat~~ Y.L. treated. But this was not explained in the Morris paper. 5 hours

Y.L. ABAQUS 3 hours

8/14/2000

11-16-99 Y.L

Following results are based on TPARUN 72/73. no noise but

YMR-TC being #1 is little bit supprise.
On the other hand, no one knows what is the #1 for 10 Kyr either.

Need to do CCDF.

Created TPARUN 74,75 to run lhs.out_fastlhs4_Morris_p=8_d=2_new_noise

6 hours

Nov. 16, 1999

Running TPA 3.2 with no noise lhs.out in TPARUN72/73, following 20 parameters were identified by Morris to be important. They were further examined by FAST.

indices of the input variables to apply FAST to

1	1	AAMAI@S
2	15	SSMO-RE
3	4	FOC-R
4	2	MAPM@GM
5	6	FOCTR-R
6	5	FOCTR
7	65	WP-Def%
8	209	ARDSAV_I
9	62	Fow*
10	8	YMR-TC
11	64	SbArWt%
12	210	ARDSAVTc
13	223	WPRRG@20
14	221	APrs_SAV
15	7	TempGrBI
16	3	MATI@GM
17	189	MPrm_PPw
18	63	Fmult*
19	73	SFWt%I3
20	66	InitRSFP

i	abbreviation	abs(amp) w/o sort	i	abbreviation	abs(amp) w/ sort
1	AAMAI@S	0.1339700E-05	16	MATI@GM	0.1618018E-07
2	SSMO-RE	0.4458849E-06	9	Fow*	0.4280976E-07
3	FOC-R	0.5787869E-07	7	WP-Def%	0.4431276E-07
4	MAPM@GM	0.1217113E-06	5	FOCTR-R	0.5033473E-07
5	FOCTR-R	0.5033473E-07	3	FOC-R	0.5787869E-07
6	FOCTR	0.3713145E-06	4	MAPM@GM	0.1217113E-06
7	WP-Def%	0.4431276E-07	8	ARDSAV_I	0.2454606E-06
8	ARDSAV_I	0.2454606E-06	15	TempGrBI	0.2776778E-06
9	Fow*	0.4280976E-07	6	FOCTR	0.3713145E-06
10	YMR-TC	0.1931672E-05	14	APrs_SAV	0.4338088E-06
11	SbArWt%	0.9611741E-06	2	SSMO-RE	0.4458849E-06
12	ARDSAVTc	0.1776984E-05	19	SFWt%I3	0.5459367E-06
13	WPRRG@20	0.1720246E-05	11	SbArWt%	0.9611741E-06
14	APrs_SAV	0.4338088E-06	20	InitRSFP	0.9723933E-06
15	TempGrBI	0.2776778E-06	18	Fmult*	0.1306959E-05
16	MATI@GM	0.1618018E-07	17	MPrm_PPw	0.1316357E-05
17	MPrm_PPw	0.1316357E-05	1	AAMAI@S	0.1339700E-05
18	Fmult*	0.1306959E-05	13	WPRRG@20	0.1720246E-05
19	SFWt%I3	0.5459367E-06	12	ARDSAVTc	0.1776984E-05
20	InitRSFP	0.9723933E-06	10	YMR-TC	0.1931672E-05

Possible research topics :

(1) Ultrasonic multiphase flow measurements

(2) drift wall / waste package monitoring system.
monitor what ? water flow, moisture. rock crack.
acoustic emission from the rock. one hour

ABAQUS Beam. 2 hours

11-17-99 Y. L.

TPARUN 74/75
finished.

FAST result
slightly different
from TPARUN 72/73.

I think I figured out
how to do Morris
right.
It must be strictly
on the "evenly
distributed" base.

saved baselhs.f
as baselhs.f_old.

modifying
baselhs.f.

8 hours

Nov. 17, 1999

Running TPA 3.2 with NOISE, lhs.out in TPARUN 74/75.

indices of the input variables to apply FAST to

1	1	AAMAI@S
2	15	SSMO-RE
3	4	FOC-R
4	2	MAPM@GM
5	6	FOCTR-R
6	5	FOCTR
7	65	WP-Def%
8	209	ARDSAV_I
9	62	Fow*
10	8	YMR-TC
11	64	SbArWt%
12	210	ARDSAVTc
13	223	WPRRG@20
14	221	APrs_SAV
15	7	TempGrBI
16	3	MATI@GM
17	189	MPrm_PPw
18	63	Fmult*
19	73	SFWt%I3
20	66	InitRSFP

i	abbreviation	abs(amp) w/o sort	i	abbreviation	abs(amp) w/ sort
1	AAMAI@S	0.1174301E-05	9	Fow*	0.1276881E-07
2	SSMO-RE	0.3043255E-06	5	FOCTR-R	0.3553208E-07
3	FOC-R	0.1749335E-06	16	MATI@GM	0.9303221E-07
4	MAPM@GM	0.2825932E-06	7	WP-Def%	0.1066911E-06
5	FOCTR-R	0.3553208E-07	3	FOC-R	0.1749335E-06
6	FOCTR	0.2460635E-06	6	FOCTR	0.2460635E-06
7	WP-Def%	0.1066911E-06	8	ARDSAV_I	0.2651167E-06
8	ARDSAV_I	0.2651167E-06	4	MAPM@GM	0.2825932E-06
9	Fow*	0.1276881E-07	2	SSMO-RE	0.3043255E-06
10	YMR-TC	0.1703315E-05	15	TempGrBI	0.3608248E-06
11	SbArWt%	0.8740766E-06	14	APrs_SAV	0.3713904E-06
12	ARDSAVTc	0.1563333E-05	19	SFWt%I3	0.4811221E-06
13	WPRRG@20	0.1546590E-05	11	SbArWt%	0.8740766E-06
14	APrs_SAV	0.3713904E-06	20	InitRSFP	0.9064695E-06
15	TempGrBI	0.3608248E-06	17	MPrm_PPw	0.1079049E-05
16	MATI@GM	0.9303221E-07	1	AAMAI@S	0.1174301E-05
17	MPrm_PPw	0.1079049E-05	18	Fmult*	0.1176331E-05
18	Fmult*	0.1176331E-05	13	WPRRG@20	0.1546590E-05
19	SFWt%I3	0.4811221E-06	12	ARDSAVTc	0.1563333E-05
20	InitRSFP	0.9064695E-06	10	YMR-TC	0.1703315E-05

11-19-99 Y.L.

Had a nice talk w/ Goodluck about work together for the temp. calculation. ventilation?

1frozen (YMR-TC) look better than wp-Def./S6ArW9

Submitted 5frozen, 10 frozen, 15 frozen, 20frozen. for NOISE, page 35.

finished. plotted. directory:

/FAST/ccdf/max10k/noise/

submited no_noise 5frozen, 10, 15, 20

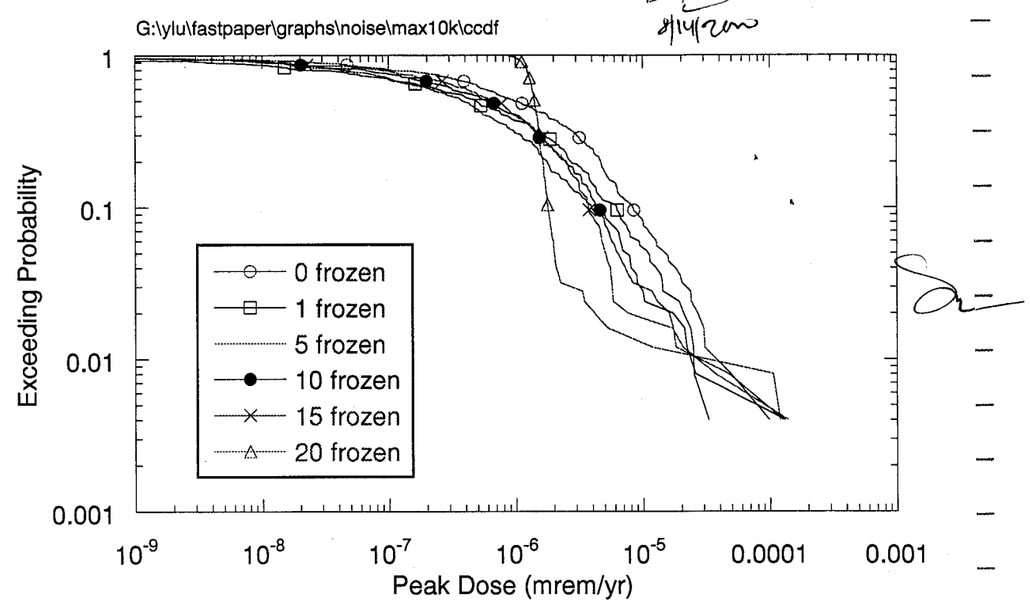
page 33. /FAST/ccdf/max10k/nonoise

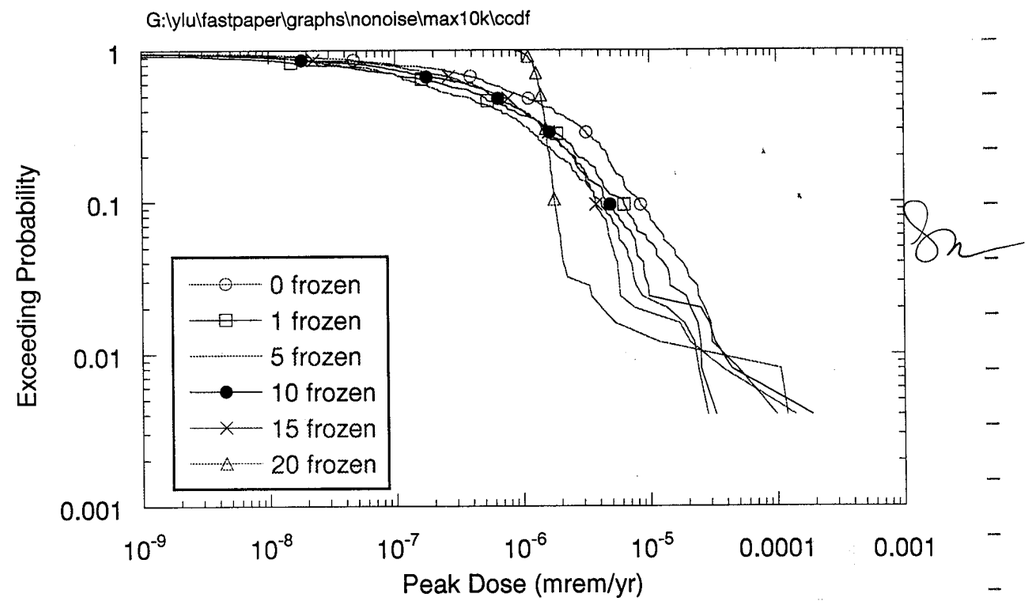
8 hours

11-20-99

From 0 → 1 → 5 are good. but from 5 - 10 is not good 10 → 15 → 20 are good. Explaination? r=7, TC. FAST not perfect.

4 hours





11-22-99 Y.L.

Finished another version of FAST. paper gave a copy to Sitakanta. Expressed my opinion that we should submit it for review.

Talked to Marty that we should finish the Mumit paper. 4 hours.

Work on ABAQUS for temp. calculation
4. hours

11-23-99 Y.L

ABAQUS temp. calculation 2 hours

Tech Review of the paper by Sitakanta & Justin Wu of Div. 18. CDF sensitivity analysis. 6 hours

Comments sent back to Justin.

11-24-99 Y.L.

worked on the FAST paper. 4 hours
gave a copy to Sitakanta. He will read it over the Thanksgiving holiday and give me back.

worked on the Morris paper.
Need to finish it. 4 hours

11-25-99 Y.L

Worked Morris Paper 8 hours

11-30-95 Y. L.

Worked on Morris paper. 8 hours
Asked Randy to give me data of EDA II repository boundary.
Finished Tech Review of Sitakanta Justin paper.

12-1-95 Y. L.

Worked on Morris paper.

Randy gave a data. for two repository areas. They seem to be right.

It seems to me that we have major problems with the Morris paper.

① Should we use 10K results running max TPI of 50K? or should we re-run 10K using 10K as max TPI?

② The results of $p=8$, $d=2, 4, 8$ were based on my own baselhs.f, $x_{i+1} = x_i + \Delta$. for log type variables.
But when Marty ran $p=4, 8, 16$, $d=2$. He used his baselhs.f and bdesgnmat.f And the results for $p=8$, $d=2$ are different.
What do we do with it?
Marty Yl. is going to run $p=8$, $d=2, 4, 8$ using his routine.

③ I have problems with Marty's

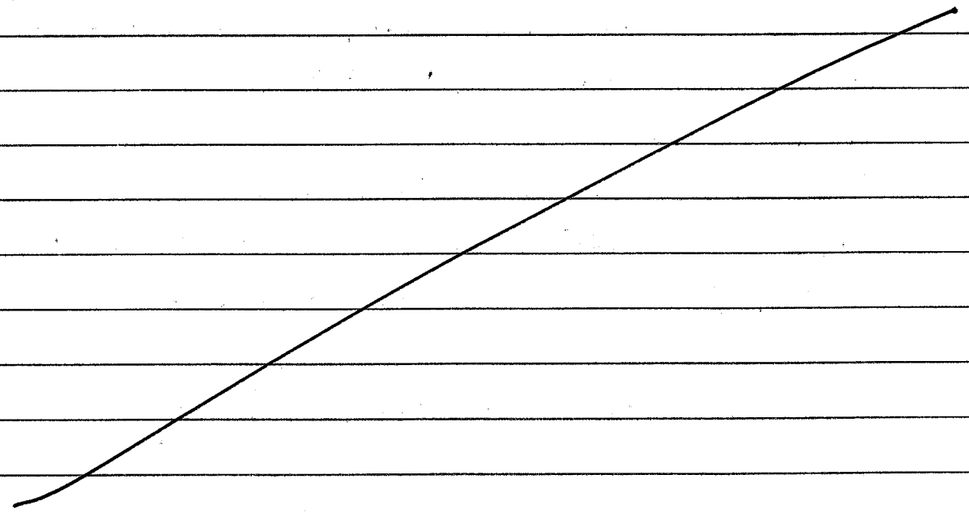
$$x_i = \exp[\ln(x_{i\,base}) + \Delta]$$
$$= x_{i\,base} * e^{\Delta}$$

what about $\Delta y / \Delta x$?

Randy's files are in my ccmail.
drift1.txt has twenty points.
I saved them in /ufenu/my.area.
I also removed the point between
(547660, 4076123) and (548160, 4075963)
which is (547897.8, 4076045.5)
Now drift1.dat has 19 points

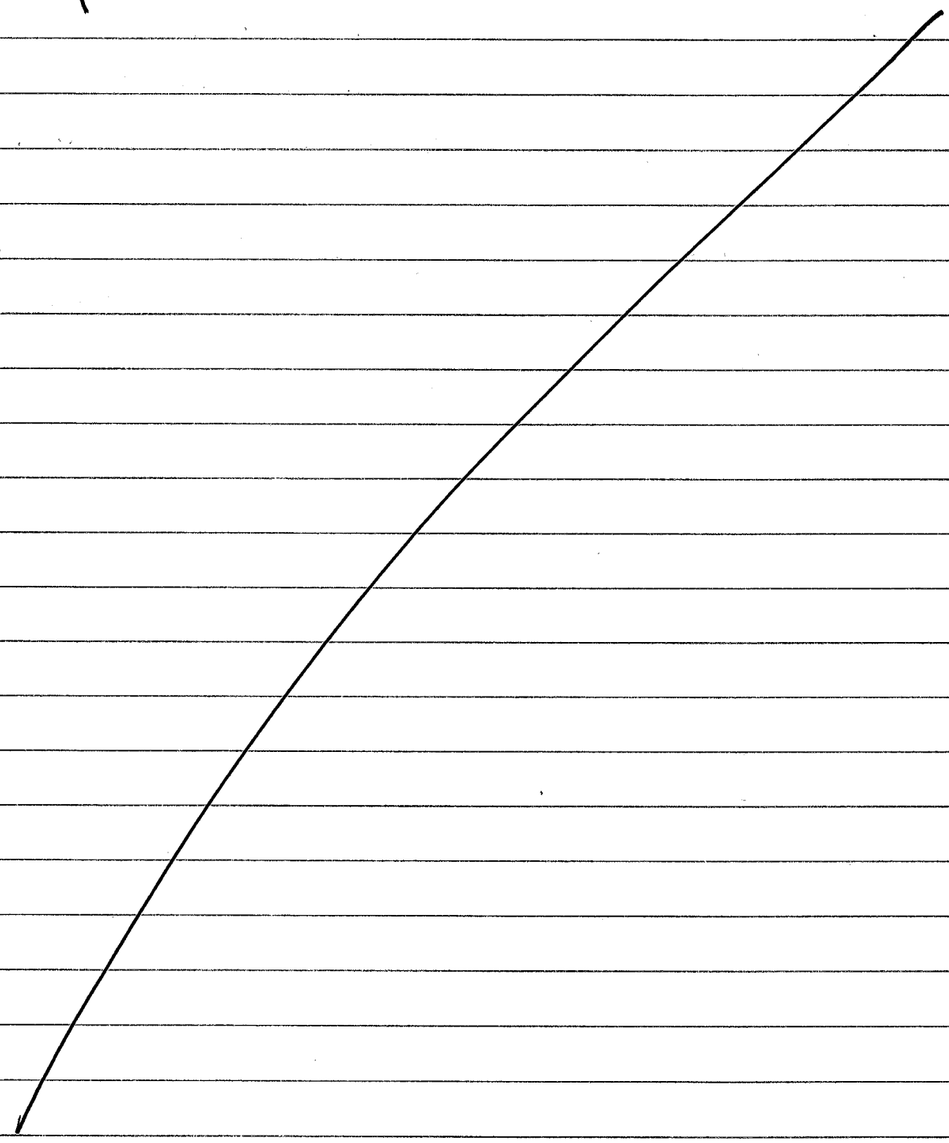
drifts. 2 hours
Morris 6 hours

A copy of Morris paper was sent to Sitalkanth.
Marty is going to submit jobs over the weekends.



12-03-95 Y.L.

Spent whole on Using ABAQUS to calculate Temp. 8 hours



12-06-98 Y.L.

[redacted] 8hr 8/14/2000

Nine hours on using ABAQUS. Finished mesh generation paper materials papt. and some of history part.

Files in /home2/ylu/abaqus/usersmanual
/Heat/myheat/heat.inp

9 hours

[redacted] Y.L. 8hr 8/14/2000

12-07-98 Y.L.

ABAQUS. 8 hours

The program ran through. But no meaningful results obtained.

Up to now total time for ABAQUS = 49 hours

12-08-99 Y.L.

FAST paper 8 hours

Received Gordon's comments on the FAST papem. Included his comments except his suggestions on doing additional work. Need to discuss it w/ Sitakanta.

12-10-99 Y.L.

FAST / Morris paper 8 hours

I couldn't find any problem w/ Morty's derivation. But his results were not the same as others. The ranking put ARDSAVTh as #1, ARDSAVNp as #3. We don't have the to do it. Suggested to Morty to run over weekend. for r>7.

12-11-99 Y. L.

Sitakanta wants a copy of FAST paper to bring on his trip. He leaves on Sunday.

Worked on the FAST paper to include Budhi's comments. 4 hours.

12-13-99 Y. L.

Worked on the Morris paper.

Marty gave me more graphs. No time to work on Morris paper/programs.

[redacted] Y. L.

9 hours Sy 8/14/2000

Y.L.

12-14-98

Checked Marty's programs. Did not find any problems. But the results are not good.

No WPRRG@ anywhere 6 hours

Drift in EDA II. 2 hours.

12-15-98 Y.L.

Spent whole day on Morris paper & FAST paper.

Suggested that Marty speak to Sitaraman himself. He did sent an email to him.

Basically, Marty's method seems to be right, but his results are not. 8 hours

12-16-91 Y.L.

Talked to Sitakanta. I'll work on the Morris problem, Marty on TPA.

Look at ARDSAUTh. min = 1.9 max = 45.0×10^6 using /momis/w-Marty/martylog.f, his data points look OK.

Submitted a job /TPARUN81.
lhs.out = /jmench/sevenSets/246Params_11
also saved at /morris/w-Marty/lhs.out
random seed #: 183310452.0
A copy of FAST gave to Sitakanta.

Had a talk w/ sitakanta. He is going to move marty to tpa.4.0. ~~H~~ YL.
I will take over the Morris work.

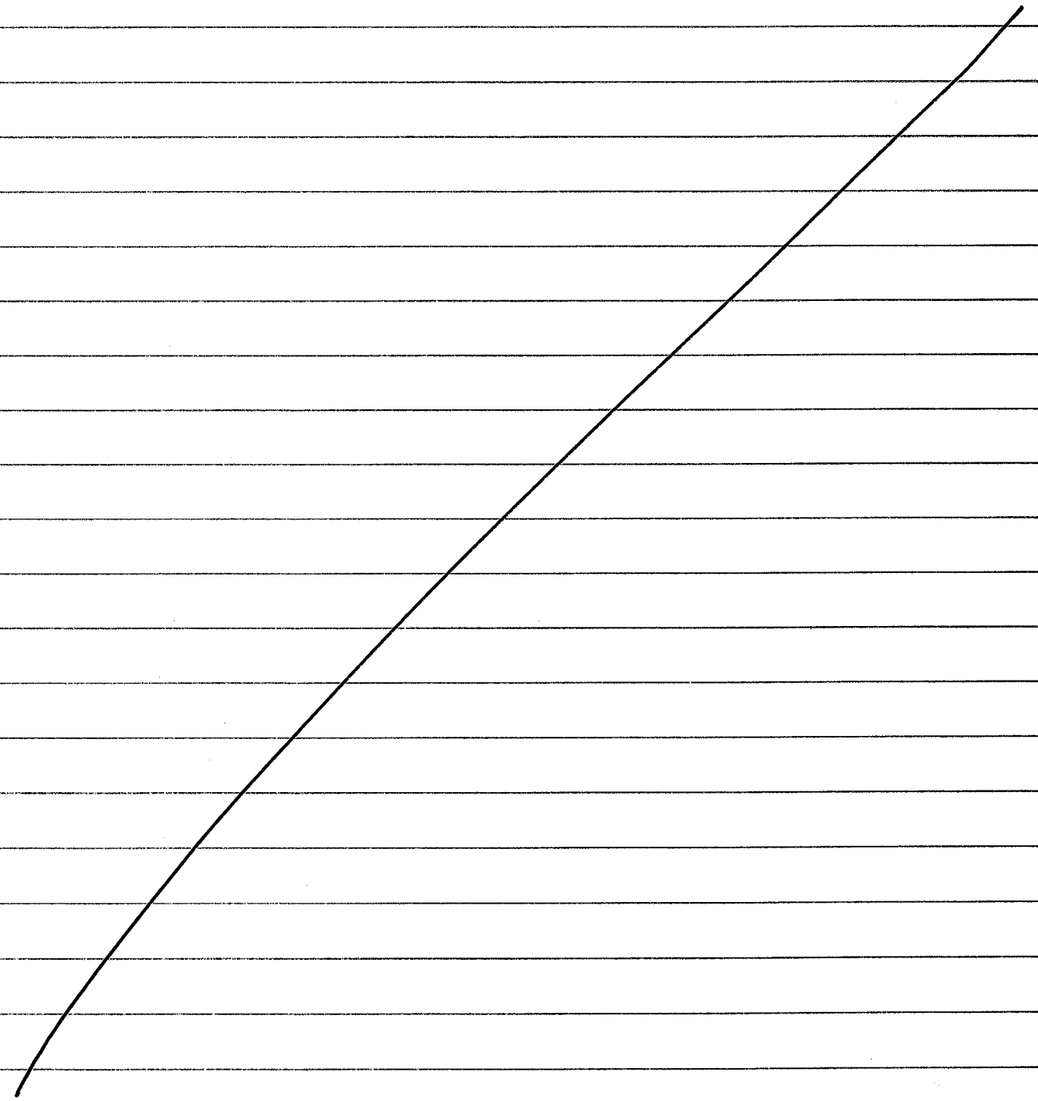
8/14/2000

12-17-91 Y.L.

Spent whole day working on the FAST paper.

TPARUN81 job still running.

8 hours



12-18-99 Y.L.

Worked on the FAST paper.
Sitakanta said that I should take his comments as technical review.

7 hours.

12-20-99 Y.L.

The first copy Budhi read ~~or~~ was Nov. 29, 99 copy. The same version was read by Gordon.

12-21-99 Y.L.

Meeting w/ Ron J and Sitakanta about temp. calculation for TPA 4.0.

We need to calculate temp. at

① drift wall
② WP
③ SF
④ between drifts
⑤ nearest drift that has the highest temp.

Say Y.L. We want to have an option in the code to specify where to calculate the temp. at a representative location of a subarea at (x, y, z).

TPA 3.3.A at
/export/home/janetzke/tpa/dev

12-22-99 Y.L.

create TPARUN82 to run the same thing as TPARUN81, page 54 except the max TPI is 10K yr.

submitted the job on vulcan.

continue working on the FAST paper.

12-27-99 Y. L.

created TPARUN ~~82~~ 83 Y.L. 8/14/2000 to run the same as TPARUN81 except the random seed # = 183310254

Submitted ccdf for 1 frozen. 5 frozen
4 hours

worked on ABAQUS also. 4 hours

12-28-99 Y. L.

Talked to Dr. English Pearcy. He introduced me to James Winterle, who may have some work for me to do.

James Winterle gave me three papers to read. and a charge # 20-1402-861.

Worked on the Morris paper. 8 hours

12-29-99 Y.L.

Groundwater paper 4 hours

Morris paper 4 hours

Marty's ccdf does not look good.

12-30-99 Y.L.

Morris paper 8 hours

Discussed with marty.

If Δ is not constant, then $\Delta Y/\Delta X$ will not be compared with the same size.

It seems to me that we have have to keep Δ const.

12-31-99 Y.L.

TRARUN86, p=4, d=2, 50K, 1833104S2
87 p=16, d=2, 50K, "
88, p=8, d=2, 10K, "
89, p=8, d=2, 50K, 1833102S4

Div. 20 Management turns off all computers afeer 3:00 pm
I lost all jobs submitted. 4 hours

Groundwater. paper 4 hours.

1-4-00 Y.L.

Gordon informed me that this week is my last week.

Sitakawta decided to submit the FAST paper.

Need to clear work and documents.

1-5-00 Y.L.

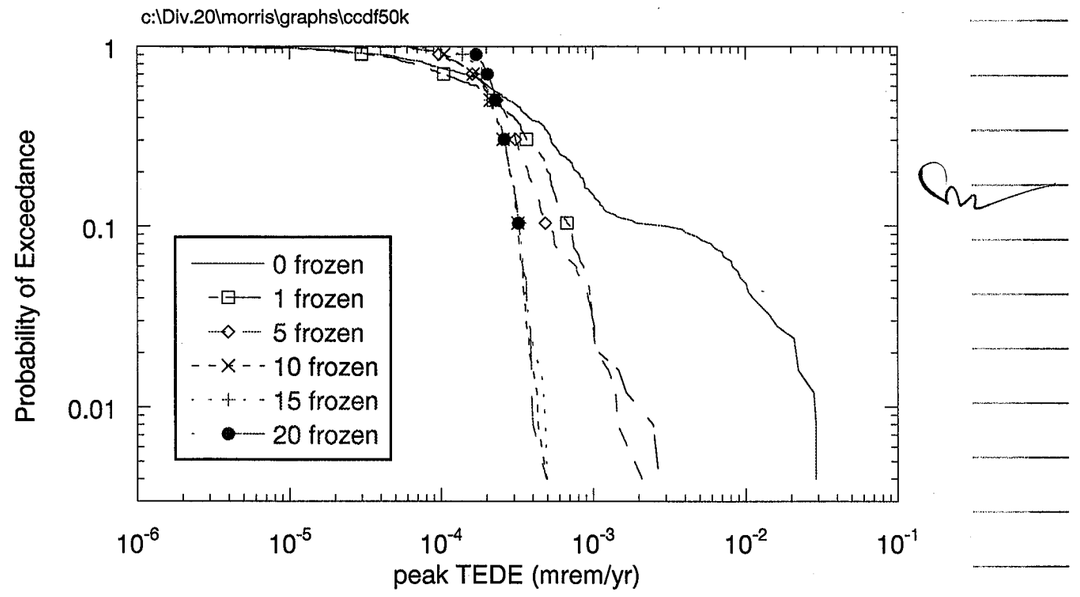
ccdf run finished.
TPARUN 87 crashed.
TPARUN 86 continuing

Talked to James. Uncertain about the barometric pressure work. He will find out this friday.

Talked to Justin. Call him again Friday

1-6-00 Y.L.

Based on my implementation of Morris method.
results in volcan/yLu/morris/ccdfs/
plots in C:/Div.20/morris/graphs/ccdf50k
This ccdf plots show that my implementation is right



finished TPARUN86
submitted 87_88_89.

Called James. He will find out Friday

1-7-00 Y.L.

Went through the FAST paper with Sitakanta.
Finished Morris run: TPARUN 87, 88, 89.
Results were used in Table 2, 3, 4 of the Morris paper.

1-10-00 Y.L.

pluto/abaqus/usersmanual/Heat/myheat:

Y.L.
~~AE~~ 8/14/2000 ABAQUS calculation of rock temp.
/res_12-13-99/ heat.inp: flux imposed on the drift wall.
/heat2.inp: flux generated by SF.

Vulcan:
/configControl_Aug-10-99
files used for configuration control on Aug. 10, 99.

/FAST: files for the FAST paper

/RonsTest: some TPA test runs for Ron.

/morris: files for the morris paper.

/nfenv: files for temp. calculation.

/TPARUN : p = d = 11

/TPARUN1 : p = 8, d = 2.

/TPARUN2 : p = 8. d = 2

/TPARUN3 Y.C. Sa 8/14/2000 : p = 8 d = 2, volcano flag on seimic off

4. p = 8, d = 4, volcano on seismic off

5 p = 8, d = 8, volcan on seimic off

6 p = 11, d = 11, volcano on seismic off

/TPARUN7 p = 8. d = 2 } faulting on
/TPARUN8 p = 8, d = 4 } others off

/TPARUN11 same as 3 } seimic flag on
/ " 12 4 } others off
/ " 13 5 }

/TPARUN21, FAST Codell's 20 parameters, 50K
22, FAST, " , 50K
23, FAST " , 10K
24, FAST " , 10K
25, " , Codell's 20 params., 10K
26, " , " , 10K

the difference between 23, 24 and 25, 26 is a different transformation function is used.

/TPARUN31, FAST, 50K p = 8, d = 2
32, FAST, 50K, "
33, " , 10K, "
34, " , 10K, "

51, 2nd order Morris
52, "

61, FAST, 10K p = 8, d = 2 } noise
62, FAST, 10K " }
63, " , 50K " }
64, " , 50K " }
65 " 10K " }
66 " " " } no noise (no phase shife)
67 " 50K " }
68 " " " }

Sa 8/14/2000

71, same as TPARUN 11, Max TPI = 10K
72, "
73, "
74, "
75, "

~~max TPI = 50K~~

81, Morris. p = 8, d = 2, random seed: 183310452
82, " " , " max TPI = 10K

83, same 81, seed #: 183310254

86.87.88.89, see page 64

My consultancy with Div. 20, SwRI ~~finishes on~~ T.L. ends on Jan. 10, 2000.

Sy
8/4/2000

Yichi Lu

This scientific notebook should be closed because Yichi Lu no longer works at the Institute

5/4/2000

This scientific notebook is essentially a journal kept by Dr. Yichi Lu, consultant, as work he conducted to implement and test the Moris and FAST methods for the TPA code. The information contained herein is not sufficient to replicate all work done by the consultant. However, Dr. Sotaksha Mohanty, for whom Dr. Lu worked, should be able to retrace the steps taken in the development process.

Gordon Wittmeyer
5/8/2000

I reviewed the scientific notebook #372 again and determined that no information loss has taken place as a consequence of cross-outs used by Yi Chi Lu at several places in this document.

Sitakanta Mohanty
8/14/2000

I have reviewed this SN a second time and find the corrections to be appropriate.

Gordon Walters
8/14/2000