

HLWYM HEmails

From: Stuart Stothoff
Sent: Wednesday, February 28, 2007 10:05 AM
To: Randall Fedors; James Winterle; Osvaldo Pensado
Cc: Chandrika Manepally; David Pickett; Hakan Basagaoglu
Subject: RE: SubareaWetFraction and WastePackageFlowMultiplicationFactor

Randy

It's largely for practical reasons, but also agrees with my bias that geologic systems tend to behave logarithmically. Perfect mass balance occurs when SAWF / WPFMF = a constant (i.e., 1). If WPFMF is log-distributed, then SAWF must also be log-distributed. Until we got both to be loguniform, SAWF/WPFMF wasn't a constant.

It also makes physical sense, because the key parameter is really drip spacing. SAWF is inversely proportional to drip spacing and WPFMF is proportional to drip spacing. I kinda feel that drip spacing is log-distributed.

Give me a call for further explanation.

stu

-----Original Message-----

From: Randall Fedors [mailto:RWF@nrc.gov]
Sent: Wednesday, February 28, 2007 5:45 AM
To: James Winterle; Osvaldo Pensado; Stuart Stothoff
Cc: Chandrika Manepally; David Pickett; 'hbasagaoglu'
Subject: RE: SubareaWetFraction and WastePackageFlowMultiplicationFactor

I missed why we switched from uniform to loguniform. At the meeting last week, we first talked about making them both uniform distribution. Is there some rationale that shifts the sampling, like more belief in one conceptual model over another?

Conceptual models for Fwet

1. All fractures flow and will lead to dripping, Fwet=1
2. Secondary mineralization indicates fraction of fractures that flow and might drip, Fwet~0.58
3. Prominent structural features have flow that will drip, Fwet~0.25

--Randy

>>> Osvaldo Pensado <opensado@cnwra.swri.edu> 02/27/2007 4:31 PM >>>
Sorry guys for the email overload,

Please delete the previous attachment. Stu observed that if X is loguniform then 1/X is also loguniform. The math to prove this is simple. Duh!

So there is nothing to it. This is the solution

SubareaWetFraction=loguniform(0.25, 1.0)
WastePackageFlowMultiplicationFactor=loguniform(1.0, 4.0)
Correlation coefficient = -0.9999 (it is impossible to request -1 as a correlation in TPA code)

The product, SubareaWetFraction x WastePackageFlowMultiplicationFactor is still not equal to 1.0 (due to the scatter introduced by the -0.9999 correlation), but it is close enough (see the attachment).

The deadline for the parameters is tomorrow. I am not keeping track of the parameters, do not tell me your changes. You (Chandrika/Hakan) need to get in touch with David Pickett for the EBSREL parameters, and Femi for all of the other parameter updates.

=====
Osvaldo Pensado, Ph.D.
Senior Research Scientist, SwRI
6220 Culebra Road. San Antonio TX 78238
(210) 522 6084
Fax: (210) 522 6081
=====

-----Original Message-----

From: Osvaldo Pensado [mailto:opensado@cnwra.swri.edu]
Sent: Tuesday, February 27, 2007 2:29 PM
To: Stuart Stothoff; 'James Winterle'
Cc: 'Chandrika Manepally'; 'hbasagaoglu'; Randall Fedors
Subject: SubareaWetFraction and WastePackageFlowMultiplicationFactor

Fellows,

The original suggestion for the distributions SubareaWetFraction and WastePackageFlowMultiplicationFactor did not satisfy the requirement $\text{SubareaWetFraction} \times \text{WastePackageFlowMultiplicationFactor} = 1.0$ that Stu suggests (it actually misses that requirement by quite a bit).

Find attached an approach to fix that problem. I assumed that $\text{WastePackageFlowMultiplicationFactor} = \text{loguniform}(1.0, 4.0)$. Then I derived the distribution for SubareaWetFraction as $1/\text{WastePackageFlowMultiplicationFactor}$.

The resulting distribution is not exactly any of the pre-defined distributions but it can be approximated with a finite-exponential. Alternatively, a user-defined CDF can be used to define SubareaWetFraction.

I give you two alternatives, pick your choice. **Please let David Pickett your choice (he is compiling the EBSREL parameters).**

I also included the distribution on the product $\text{SubareaWetFraction} \times \text{WastePackageFlowMultiplicationFactor}$. The product is not exactly 1.0, but close.

I like the finite-exponential, but the product $\text{SubareaWetFraction} \times \text{WastePackageFlowMultiplicationFactor}$ is not exactly 1.0. The

user-defined CDF produces a more accurate product (closer to 1.0), but it needs a number of lines in tpa.inp to be implemented.

Pick your choice and let Dave and me know. I am fine with both choices (although I told you I like the finite-exponential better).

=====
Osvaldo Pensado, Ph.D.
Senior Research Scientist, SwRI
6220 Culebra Road. San Antonio TX 78238
(210) 522 6084
Fax: (210) 522 6081
=====

-----Original Message-----

From: hbasagaoglu [<mailto:hbasagaoglu@cnwra.swri.edu>]

Sent: Monday, February 26, 2007 9:37 AM

To: Osvaldo Pensado; James Winterle

Cc: Chandrika Manepally

Subject: Seepage Workshop Phase 2- Summary and Action Items_Version2-Feb23

Osvaldo and Jim,

I just wonder if you have any concerns and/or suggestions on the parameter list, values, and the technical basis included in the attached file Chandrika e-mailed you last week. Thanks,

Hakan

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 1264

Mail Envelope Properties (1FA53ADF29758448974A8AC1118E627EA23FB6F997)

Subject: RE: SubareaWetFraction and WastePackageFlowMultiplicationFactor
Sent Date: 2/28/2007 10:04:30 AM
Received Date: 2/28/2007 10:04:00 AM
From: Stuart Stothoff

Created By: sstothoff@cnwra.swri.edu

Recipients:

"Chandrika Manepally" <cmanepally@cnwra.swri.edu>
Tracking Status: None
"David Pickett" <dpickett@cnwra.swri.edu>
Tracking Status: None
"Hakan Basagaoglu" <hbasagaoglu@cnwra.swri.edu>
Tracking Status: None
"Randall Fedors" <Randall.Fedors@nrc.gov>
Tracking Status: None
"James Winterle" <jwinterle@cnwra.swri.edu>
Tracking Status: None
"Osvaldo Pensado" <opensado@cnwra.swri.edu>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	5026	2/28/2007 10:04:00 AM

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received: