From: Randall Fedors
Sent: Wednesday, February 28, 2007 5:13 PM
To: Hakan Basagaoglu
Cc: Chandrika Manepally; Danielle Wyrick
Subject: RE: Lower bound for SubareaWetFraction

Hakan,

I think Smart et al 2006 had the number: 78 prominent features (faults?) in 2.6 km of drift (on one of the figures). What I wasn't clear on was what Smart et al only referred to faults (not shear zones or fracture zones).
Chandrika, provide Myers (NFENV) and Pickett (EBSREL) with the set of parameters per the deadline today. NRC does not need them today. My one last comment is to make Fmult negatively correlated with the value in the summary (because WPFMF comes in too late to affect Fmult as a function of flux rate).

--Randy

>>> hbasagaoglu <hbasagaoglu@cnwra.swri.edu> 02/28/2007 2:59 PM >>>

Randy,

Shall we repeat the same analyses only with the prominent structural features? or shall we rely on all available ECBR fracture data?

Danielle told me that she could provide us with any data we need, but if we want to remove the cooloing joints and vapor phase partings, she needs to go back to the original data, in thi case, it will take sometime for her to get us the data we need.

So, please let us know if you would like us to repeat the same analyses with the prominent structural features only.

Thank you.

Hakan

-----Original Message-----
From: Randall Fedors [mailto:RWF@nrc.gov]
Sent: Wednesday, February 28, 2007 1:42 PM
To: hbasagaoglu
Cc: Chandrika Manepally; Danielle Wyrick
Subject: RE: Lower bound for SubareaWetFraction

To answer your last question, No.

>>> hbasagaoglu <hbasagaoglu@cnwra.swri.edu> 02/28/2007 2:34 PM >>>

Randy,

I think we're talking about the same conceptul model. According to text on p.3-13, "the Monte Carlo realizations
were based on geologic features in ESF recognized as faults, fracture zones, and shear zones". The spacing for these
prominent strucural features was 2.4 m. Because

ln(2.4)=0.87 and
ln(nu_a)=0.995*(0.87)+2.39=3.26 (from Eq. 3-26, and as reported in the second paragraph on p. 3-13)

These numbers were used to calculate the lower bound for Fwet (which was 0.26-0.29 on p.3-13 and Fig. 3-14 -based
on Monte Carlo simulations)

So, if the vapor phase partings and cooloing joints had been also included in Hughson et al.'s analyses, then the mean spacing
between prominent structural features would have been < 2.4 m for the ESF (which will be somewhere in between the mean
spacing for Tptpmn and the mean spacing for Tptpll for the ECBR, and hence it will still be consistent with the ECRB data).

Danielle, would it be possible to exclude vapor phase partings and cooloing joints from the data you used
to construct CFDs?

But before that, Randy do we have any field evidence and/or technical basis for vapor phase partings and cooloing joints NOT
to be considered as potential drip locations?

Thanks,

Hakan

-----Original Message-----
From: Randall Fedors [mailto:RWF@nrc.gov]
Sent: Wednesday, February 28, 2007 12:36 PM
To: hbasagaoglu; James Winterle; Osvaldo Pensado; Stuart Stothoff
Cc: Chandrika Manepally; Danielle Wyrick
Subject: RE: Lower bound for SubareaWetFraction

Hakan,

Hughson et al 2000 also had another conceptual model that used spacing of prominent structural features (not every fracture, but rather, spacing that used only faults, fracture zones, and shear zones) in the ESF. This where the Fwet value 0.25 came from my slides of last weekend.
--Randy

>>> hbasagaoglu <hbasagaoglu@cnwra.swri.edu> 02/28/2007 1:20 PM >>>

Randy,

In Hughson et al. 2000, two 'mean' spacing values were reported.
The first one is based on bomb pulse Cl data, and "ln-transformed" mean value was 4 m (Fig. 3.2), which corresponds to a separation distance of 55 m (but the report acknowledged the fact that more sampling would likely reduce the spacing, on p. 3-5).

The second "ln-transformed" mean spacing value was 0.87 m (Fig. 3.3), which corresponds to a spacing interval of 2.4 m. This was the spacing value used in determining
the lower bound for the SubareaWetFraction (on p.3-13; ln(nu_A)=3.26 was obtained from Eq. 3-6 for ln(nu_L)=0.87).

So, in Hughson et al., the mean fracture spacing was set to 2.4 m (ln(2.4)=0.87) for the ESF, but
not to ~20 m (if I am not missing something else), and using that value, 0.26-0.29 (page 3-13) was obtained for
the lower bound of the SubareaWetFraction in Fig. 3.14.

This separation distance of 2.4 m -for the ESF- is actually is close to the mean separation distance of 2.69
(for Tptpll) -for the ECRB- Danielle provided us (and nearly half of the median separation distance
for the same unit from the ECRB data).

Hakan

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Sent Date: 2/28/2007 5:13:08 PM
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Recipients:
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