

Feedback Exercise

(Answers)

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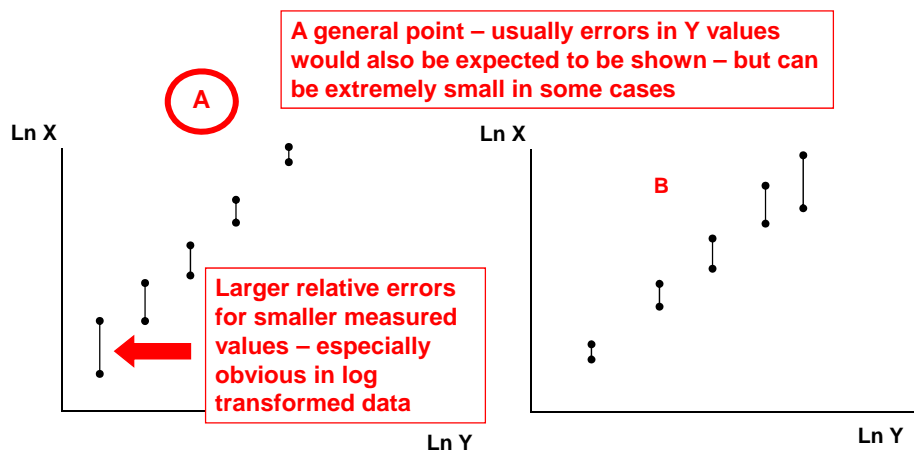
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Feedback

- Answers to problems
- Interpretation of feedback

Starting point - Data Level (1)

- Data with uncertainties are plotted based on laboratory measurements – which curve looks like errors have been handled correctly?



Data level (2)

- If a measured value of 1353.1456 has an associated uncertainty of 10%, how should it be reported? **1350 +- 140**
- If this measured value must be corrected for a background of 2 with an uncertainty of 3%, how should it be reported? **1350 +- 140**
- If this measured value must be corrected for a background of 1340 with an uncertainty of 10%, how should it be reported? **Below Detection Limit**

Equations

- Quick scans of equations can often reveal quality control problems: for the following

$A = B \log (C/D)$, with

$A - \text{kg.m.s}^{-2}$

$B - \text{g.cm.s}^{-2}$

$C - \text{g.s}^{-1}$

$D - \text{m.s}^{-1}$

$\text{Log}(C/D) \Rightarrow \log(\text{g.m}^{-1})$

What indicates an error in the equation?

What suggests poor QA and risks introducing errors?

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High risk of 6 order of magnitude errors creeping in

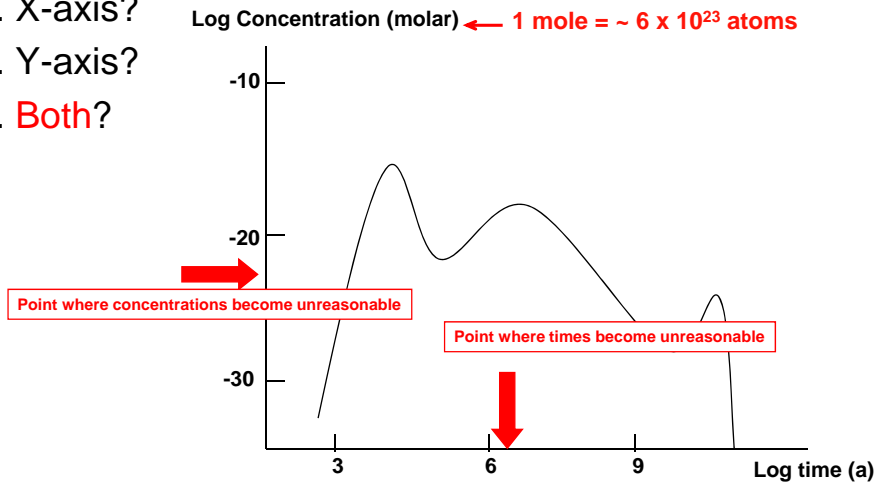
What indicates an error in the equation?

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PA model level (1)

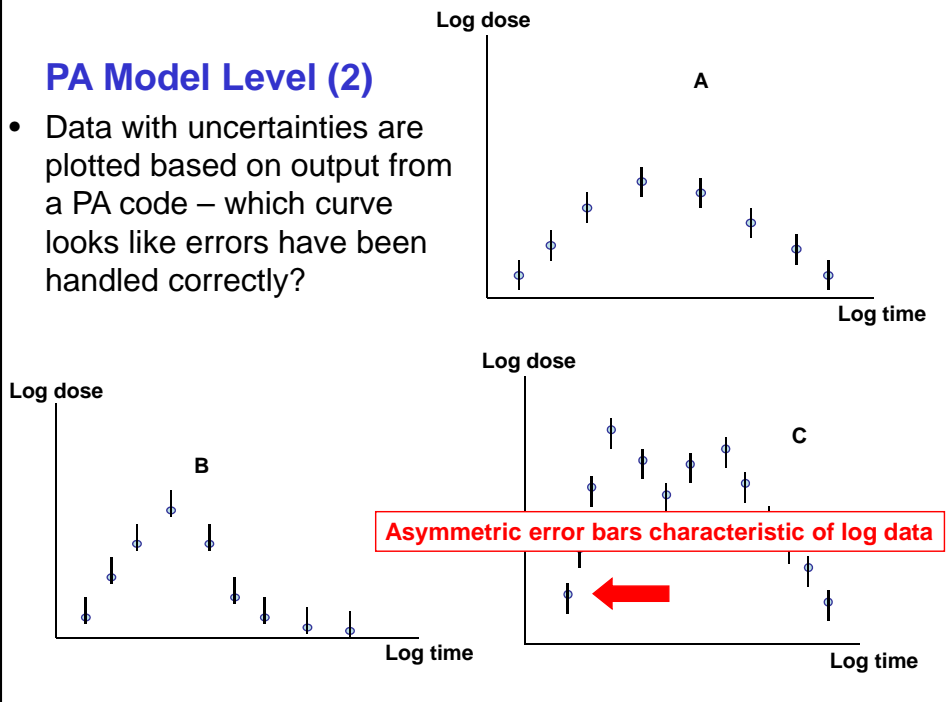
Where do there appear to be problems with this curve from a geosphere transport model?

- . X-axis?
- . Y-axis?
- . Both?



PA Model Level (2)

- Data with uncertainties are plotted based on output from a PA code – which curve looks like errors have been handled correctly?



System level (1)

- The regulatory guideline for expected scenarios includes a dose criterion of 10 $\mu\text{Sv/a}$
- PA for a particular reference scenario yields a dose maximum of 9 $\mu\text{Sv/a}$ at 10^5 years after closure
- Does this
 - Meet regulatory guidelines?
 - Not meet regulatory guidelines?
 - **Require more information to assess compliance?**

→ Without an error or assessment of uncertainties, it is impossible to say if this model output is compatible with regulatory guidelines or not. If the models and databases are demonstrably conservative, this may be sufficient to show compliance

System level (2)

- The regulatory guideline for expected scenarios includes a dose criterion of 10 $\mu\text{Sv/a}$
- PA for a particular reference scenario yields a dose maximum of 15 $\mu\text{Sv/a}$ at 10^8 years after closure
- Does this
 - Meet regulatory guidelines?
 - Not meet regulatory guidelines?
 - **Require more information to assess compliance?**

→ A model output at 100 Ma has no meaning (regardless of regulations): numerical values can be discussed only over the period for which the model assumptions remain valid (maybe 1 Ma or so)