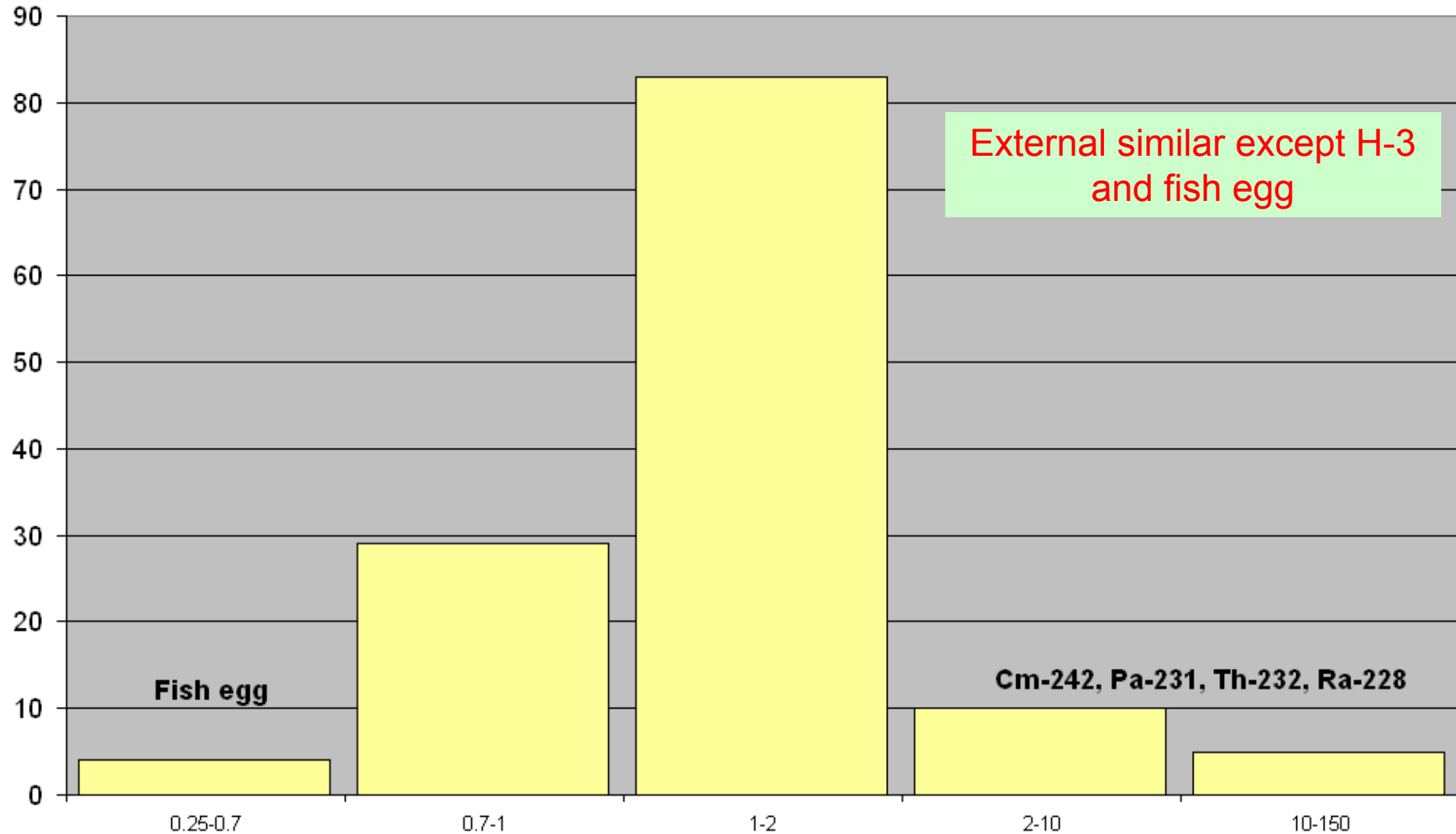


'Repeat' runs/variations on a theme

Model	Participant
RESRAD-BIOTA ['basics']	Sunita Kamboj (ANL, USA)
RESRAD-BIOTA [available software]	Mike Wood (Liverpool, UK)
EA R&D128 ['basics']	Jordi Vives i Battle (WSC, UK)
EA R&D128 [available spreadsheets]	Laura Newsome (EA, UK)
EA R&D128 [analogue approach]	Laura Newsome (EA, UK)
ICRP RAP report	Nick Beresford (CEH)
K-Biota	Dong-Kwon Keum (KAERI)
ERICA [default]	Laura Newsome (EA)/Hildegarde Vandenhove (SCK-CEN)
ERICA [create organism]	Mat Johansen (ANSTO)

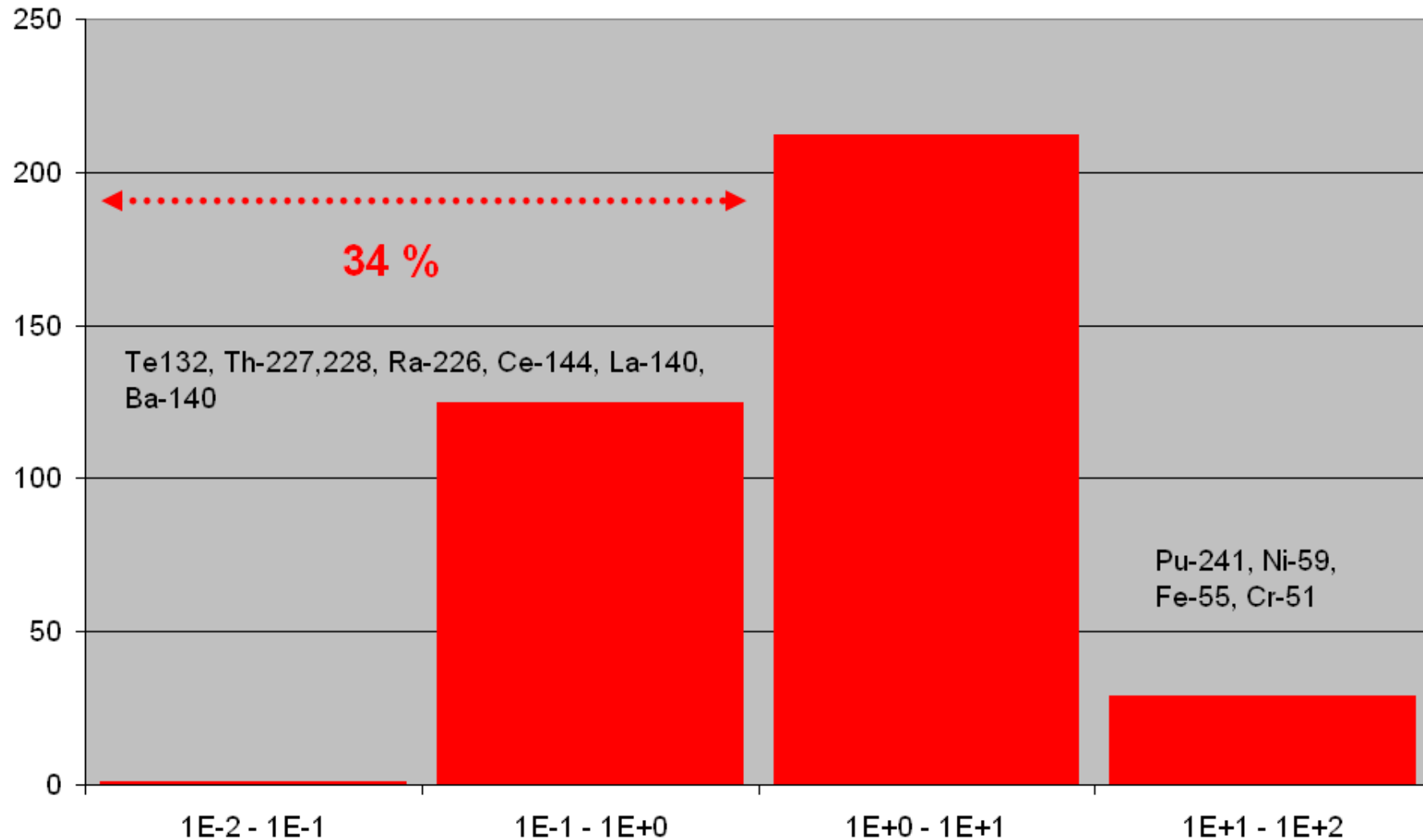
RESRAD software:basics



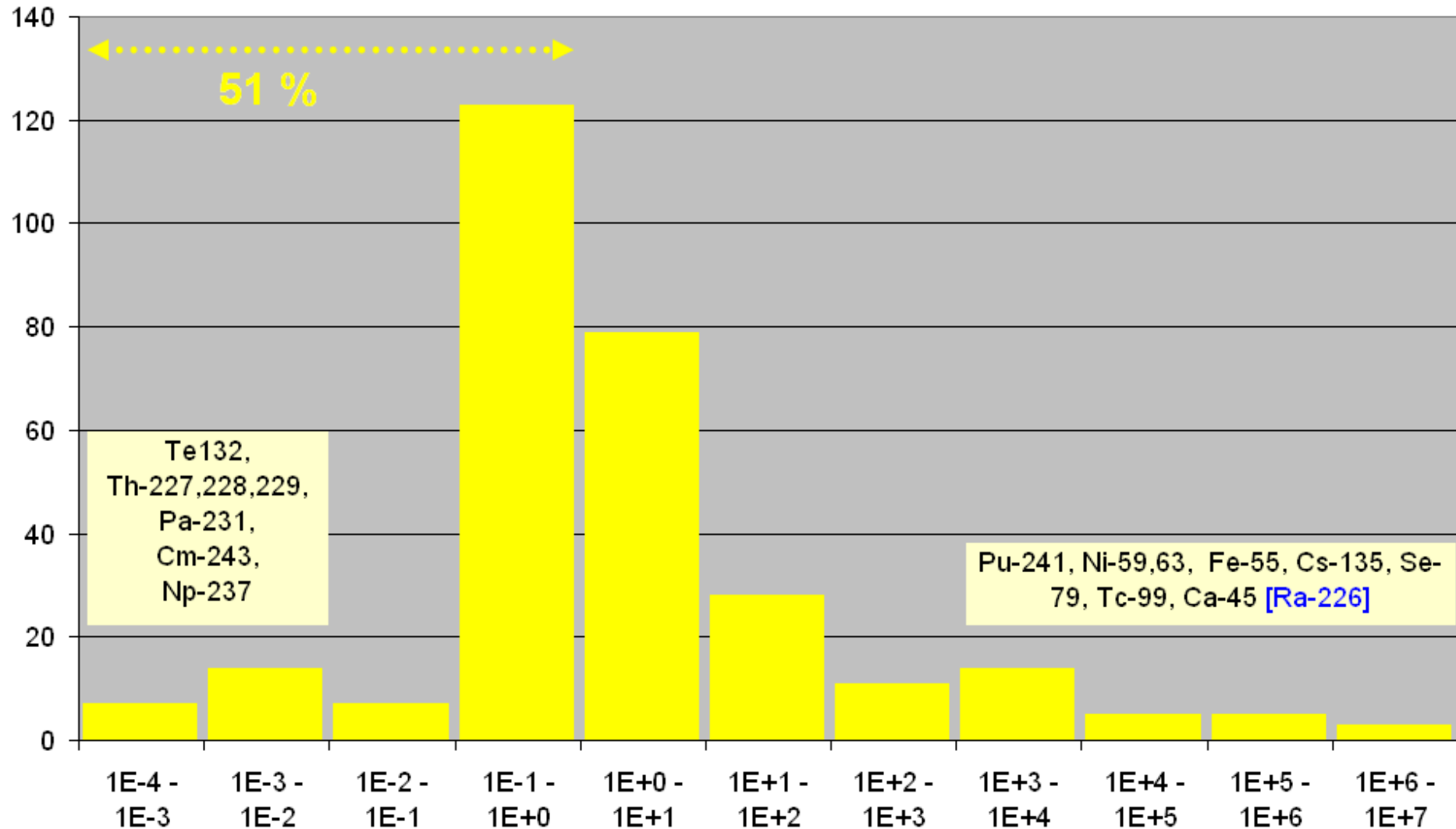
R&D128 spreadsheets v's default

- U-238 dose rates c. 2x higher using the spreadsheets
- Frog & earthworm external dose rates for H-3, C-14, S-35, P-32 c. 2x higher using the spreadsheets
- Spreadsheets estimated dose rate to the flatfish egg geometry on the sediment interface to be $\leq 20\%$ of those determined using the underlying methodology

R&D128 analogue:basics internal



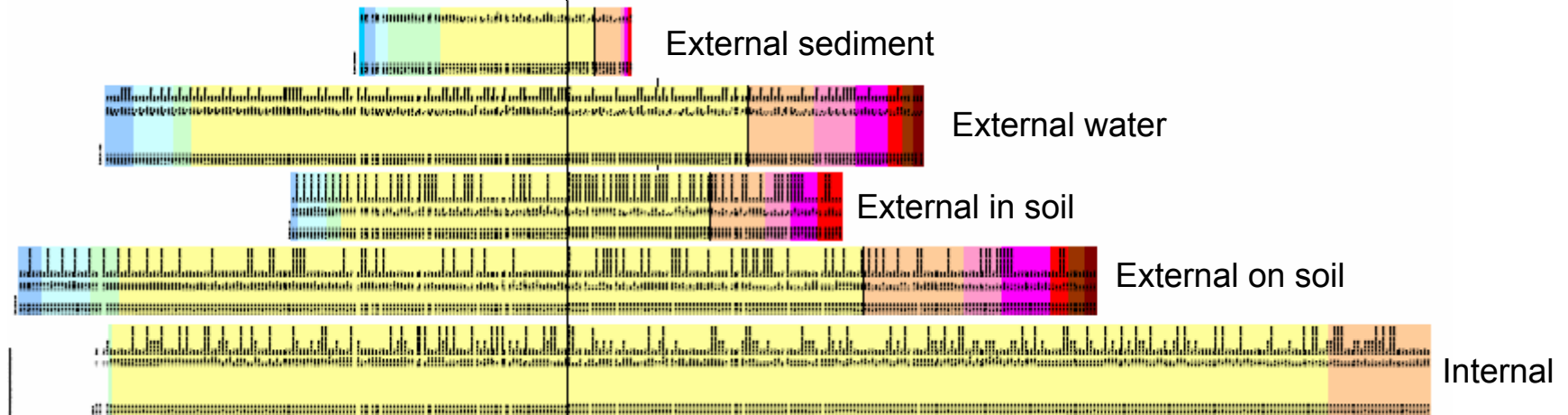
R&D128 analogue: basics external (on-soil)



Analogue approach underestimates DCC

ratio 1.0

Analogue approach gives higher results (more conservative)



49% of results underestimate DCC

8% underestimate by >1 order magnitude

ratio analogue:calculated
1E-5 - 1E-4
1E-4 - 1E-3
1E-3 - 1E-2
1E-2 - 1E-1
1E-1 - 1E+0
1E+0 - 1E+1
1E+1 - 1E+2
1E+2 - 1E+3
1E+3 - 1E+4
1E+4 - 1E+5
1E+5 - 1E+6
1E+6 - 1E+7

ERICA methodologies

- ERICA Tool 'default', ERICA Tool 'create organism', ICRP – estimates with 10 %
- K-Biota typically within 20 % or ERICA Tool 'default' values
 - Pu-239, Pu-240, U-238 Sr-90 external dose rate terrestrial organism up to 50% lower than 'default'
 - A few outliers external dose (C-14, H-3)
- ERICA 'create organism' – external dose rates to eggs at sediment-water interface 2x higher than other ERICA runs [**in sediment rather than on sediment?**]



Timetable

- Paper submitted by c. April 2010
Radiation Environmental Biophysics
On-line appendices