The Concept of STOFFENMANAGER® and ART source-receptor modelling

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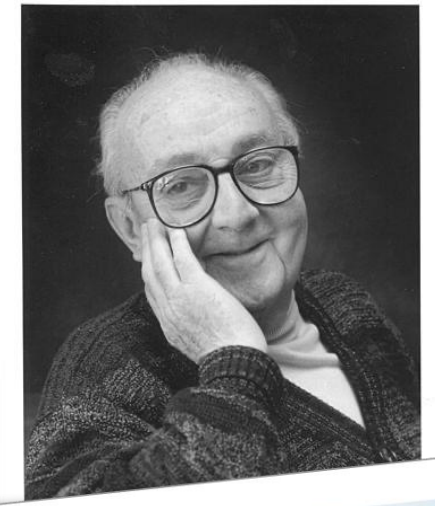
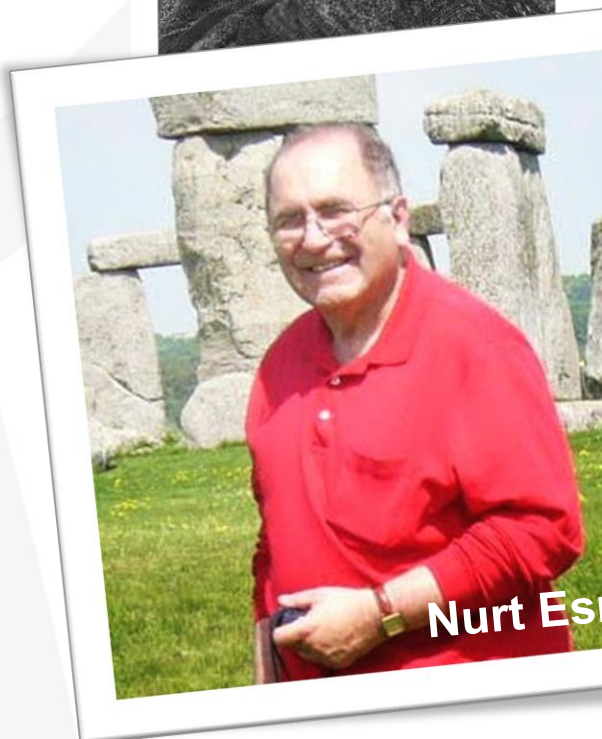
50 YEARS IOM science with purpose

All models are wrong, but some are useful

- The EASE model was developed in the 1990s for the EU New and Existing Substances Regulations
- It was a rule-based expert system
- We evaluated its reliability in 2005 and basically concluded it has low predictive value
- In parallel with this models were being used in retrospective exposure assessment in epidemiology
- … and these were more successful





The basis for this type of model…

- Interventions affect exposure in a multiplicative way
- The same changes in different situations have the same relative effect
- Factors in the model are independent in their effect
- Model factors can be identified from a source-receptor conception
- Calibration enables relative changes to be adjusted to estimate actual exposure levels
- Measurement and modelling are closely intertwined and should complement each other

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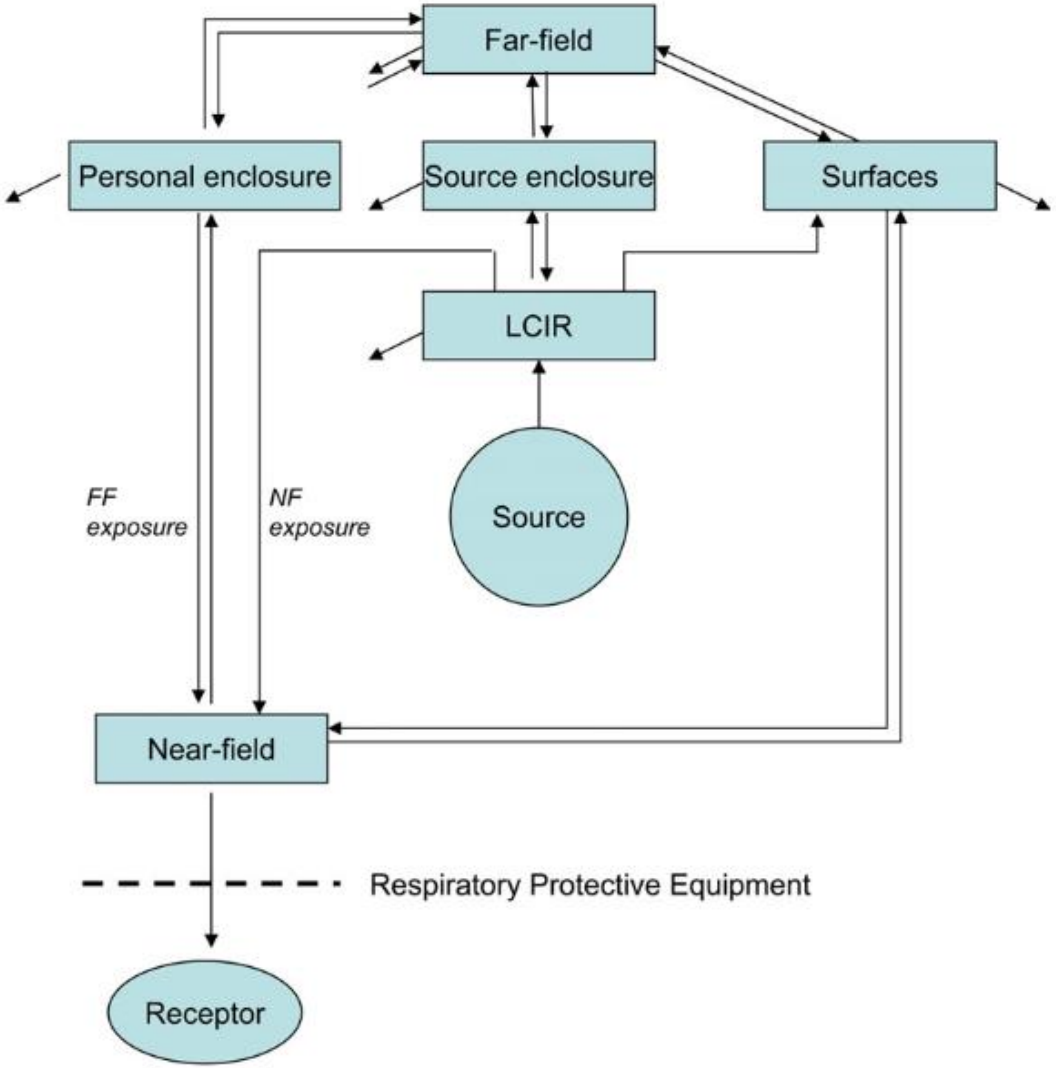
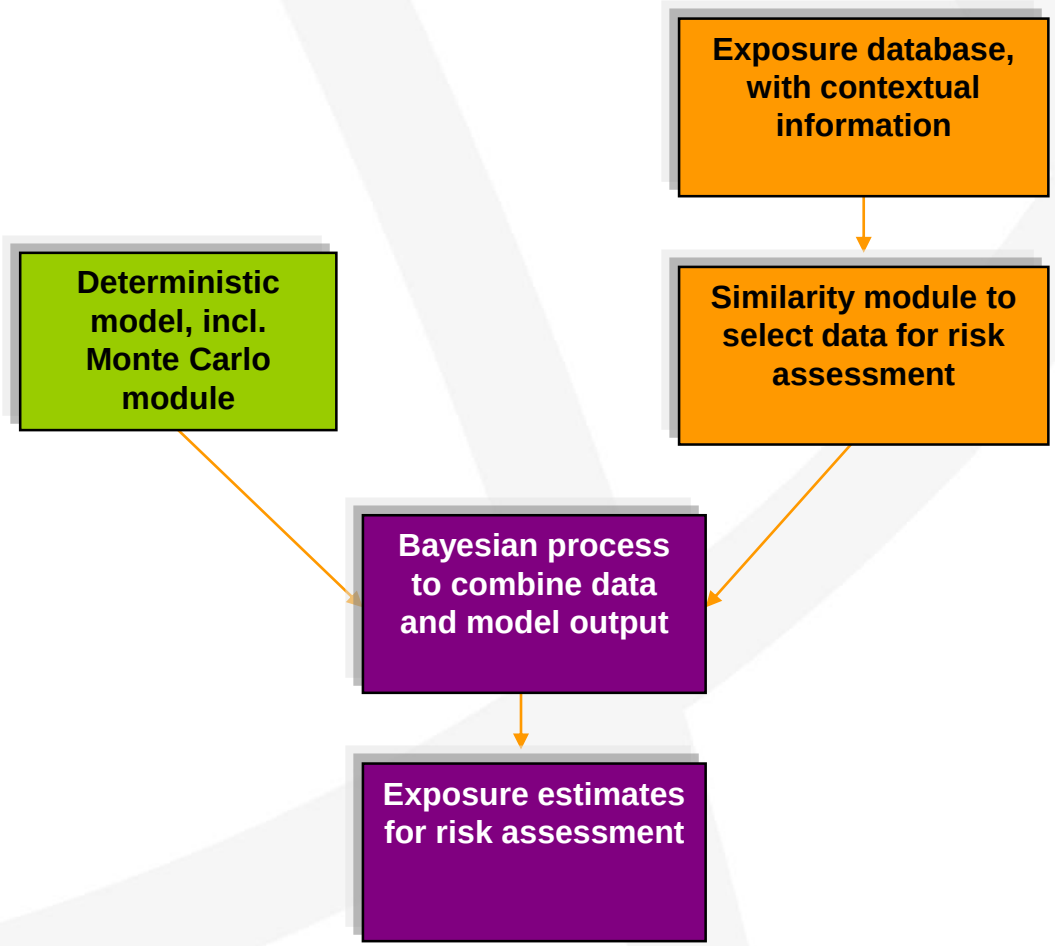
Conceptually…



Conceptually…

Model component	Principal MF
Source	Activity emission potential (H)[a]
	Substance emission potential (E)
LCIR	Localized control (LC)
Source enclosure	Segregation (Seg)
NF and FF zone	Dilution (D)
NF zone	Personal behavior (P)
Personal enclosure	Separation (Sep)
Surfaces	Surface contamination (Su)
Receptor	RPE



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This approach is useful…

- There are several papers that have investigated the validity of ART and Stoffenmanager
- The ETEAM project showed Stoffenmanager was appropriate for regulatory risk assessment