

MERCURY MATRIX: “IMPROVED INPUT DATA QUALITY FOR APPLICATION OF SIMULATION MODELLING ...” (**ORIGINAL TITLE**) BY T.C. DAVIES

S/N	REVIEWER 3	General Comments	Revision Undertaken	Remarks
1.		“thank you for providing this article for reading. I do not think that the title of the paper fits with the subject of the work that is essentially a review of the salient geochemical aspects of mercury.”	The title of the paper has been adjusted accordingly (in line with Reviewer 3’s suggestion)	The new title reads: “ <b>An updated review of the salient geomedical aspects of mercury for simulation modelling and other prognostic applications: Africa case descriptions</b> ” - <b>NEW REVISED TITLE</b>
2.		“I suggest to update the literature on the subject, most of publication is rather obsolete and predate 2010.”	The ‘References’ have been markedly updated, with over 75 percent of the citations post-dating the year 2010.	-
3.		“Some sentences are vague or incorrect and need to be revised.”	All the sentences referred to have been checked and corrected.	<i>cf.</i> , track changes
4.		“I suggest the author to focus on the last part of the paper, dealing with a review on Hg studies on South Africa or more in general for all Africa.”	Much more focus has been given to Africa in the last part of the paper dealing with current status of Hg research and gaps in knowledge of Hg research in Africa	<i>cf.</i> , track changes
	<b>NEW ADDITIONAL REVIEWER 3</b>	<b>Comment on Annotated M/S (NEW)</b>	<b>Revision undertaken</b>	<b>Remarks</b>
1.	“Abstract”, 2 <sup>nd</sup> para.; lines 18 - 20 in Reviewer’s annotated manuscript (AM)	“... unclear, revise”	This para. has been excised altogether, and its content taken to the next para., where it is much better explained	I totally agree with the Reviewer’s comments on the “annotated M/S”; and have addressed them by way of track changes in the “New Revised Manuscript” (NRM)

2.	Under “Contribution to the field”, page 0	Deletion of the first phrase: “As a contribution towards eliminating or reducing these knowledge gaps, ...” was indicated by the Reviewer	Done	This phrase has also been deleted from the “Abstract”
3.	Lines 41 - 43 in Reviewer’s AM	“It is a vague sentence; Hg is released by biomass burning to the atmosphere and Hg in sediments, rock, etc. is mostly transported physically in the form of Hg sulphides. Cinnabar may also be oxidate. Normal breakdown is an improper term to use.”	All these comments have been addressed	Please refer to track changes in Lines 52 - 60 of the NRM,
4.	Lines 41 - 43 in Reviewer’s AM	“add sentences. Why reintroduced? When it is eliminated from the environment? Please specify your sentence.”	All these comments have been addressed	Please refer to track changes in Lines 52 - 60 of the NRM,
5.	Page 2, Lines 63 <i>et seq.</i> in Reviewer’s AM Mercury simulation modelling	“...add reference to prove your writing”	At least half a dozen references (year, 2021 or 2022) have been added to this para. to support the narrative	Please refer to track changes in relevant Section in the NRM
6.	Page 2, Lines 78 - 86 in Reviewer’s AM	“To move before at Line 72”	Done; but with slightly differently worded narrative to obviate repetitions	Please refer to track changes in relevant Section in the NRM
7.	Page 2, Section on: Input data management, Lines 89 <i>et seq.</i> in Reviewer’s AM	“ ... there is some repetitions with the previous section; please verify and modify”	These repetitions have been cleared, and narrative made much more concise	Please refer to track changes in relevant Section in the NRM
8.	Page 3, Line 120 in Reviewer’s AM	“ 20 ppm in rocks? Maybe soils”	I have removed this estimate, since it was taken from one of the older (1970) datasets; and provided more recent estimates of Hg contents in the different rock categories (igneous, sedimentary and metamorphic) in	Please refer to track changes in relevant sections in the NRM

			the ensuing sections	
9.	Page 3, Line 121 in Reviewer's AM	"metallic is inorganic Hg; among inorganic forms Hg sulphides are largely dominant"	Done	Please refer to track changes, Line 158 <i>et seq.</i> in the NRM
10.	Page 3, Line 140 in Reviewer's AM	"not here."	Comment refers to the refers to the word "soils", which has been omitted	-
11.	Page 4, Section on: Minerals; Line 160 <i>et seq.</i> in Reviewer's AM	"Some sentences have no meaning or are not completely correct (like in the minerals cinnabar and metacinnabar; Hg occurs in its inorganic form); revise and add literature"	This Section has been completely revised in line with the Reviewer's comments, with the inclusion of 4 pertinent references	-
12.	Page 4, Line 176 in Reviewer's AM	"very old literature; add new ones also!"	Three recent references (year: 2020; 2021; and 2022) have been added	-
13	Page 4, Lines 180 - 181 in Reviewer's AM	"vague, at what part of plants do you refer to?"	Reference to root, stem and leaves is made in the revised narrative	-
14	Page 4, Line 185 in Reviewer's AM	"vague, there are hyperaccumulators of metals among plants"	A whole section has been added on plant hyperaccumulators of metals (Lines 258 - 269 in the NRM) supported by a few references	-
15	Page 5, Line 188 in Reviewer's AM	"add sentences! it is unclear what you mean with environmental levels. Hg can be high in plants growing in mining regions, there is plenty of literature about this"	The section on plant metal accumulators (Lines 258 - 269 in the NRM) also provides information on uptake of Hg by plants growing in Hg mining areas, with replacement of the term "experimental levels" by "background levels"	-
16.	Page 5, Line 201 in Reviewer's AM	"much much higher"	This reviewer's comment refers to the variation in "Mercury content of edible fish tissues for various species" which is given as: 50 to 1400 ppb fresh weight	This value is supported by a number of reliable references, e.g., IPCS, 2003; Raihan et al., 2020

17.	Page 7, Line 328 in Reviewer's AM	"as Hg(II) mainly, as Hg(0) is oxidized in the atmosphere"	Has been addressed (Line 445 of NRM)	-
18.	Page 9, Line 388 in Reviewer's AM	"for what species; unclear"	The form or species (elemental Hg, inorganic Hg or organic Hg) in which Hg is absorbed after uptake (inhalation, oral exposure, dermal penetration) has been clearly stipulated for the different scenarios	-
19.	Page 9, Line 392 in Reviewer's AM	"sulphides?"	That inorganic Hg reacts in the form of Hg sulphides has been clearly indicated	Please see: Lines 507 - 509 in NRM