Note on 'The impact of new water vapour spectral line parameters on the calculation of atmospheric absorption' by Wenyi Zhong *et al.*
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In a recent paper (Zhong *et al.* 2001) we presented calculations of atmospheric transmittance in the visible and near-infrared regions using a new water vapour spectral line database (ESA-WVR). We compared the impact of the new line-list, including theoretical additional weak lines, with that ascribed to the water vapour continuum using a standard continuum model (Clough *et al.* 1989). We concluded that the impact of ESA-WVR could account for 30–90% of the absorption ascribed to the continuum. We have realized subsequently that our estimates of the continuum absorption were substantially higher than other recent calculations (e.g. Vogelmann *et al.* 1998) because we used the CKD0 version of the continuum model rather than the newer version, CKD2.2 (Clough and Iacono 1995). Accordingly, we present in Table 1 a revised version of Table 2 of Zhong *et al.* (2001) that includes results from both continuum versions. The most recent versions of the CKD continuum model is version 2.4. In the spectral region 8600–15 000 cm^{-1} CKD2.2 and CKD2.4 are identical.

TABLE 1.   ABSORPTION WITHIN THE ATMOSPHERE (W m^{-2}) CALCULATED USING HITRAN96 AND DIFFERENCES BETWEEN RESULTS USING VARIOUS DATASETS IN THE 8600–15 000 cm^{-1} REGION

SZA:	30°			75°		
Atmosphere:	TROP	MLS	SAW	TROP	MLS	SAW
HT96	70.2	59.9	20.8	32.5	28.8	12.1
	(190.2)	(171.8)	(91.8)	(76.9)	(70.2)	(39.9)
WEAK−HT96	2.0	1.6	0.4	1.1	0.9	0.2
	(2.7)	(2.1)	(0.5)	(1.6)	(1.3)	(0.3)
ESA-WVR−HT96	5.5	4.8	2.2	2.4	2.1	1.1
ESA-WVR−COR	4.3	3.8	1.6	2.0	1.7	0.8
CKD0 CONTINUUM	11.4	9.2	2.4	7.2	5.8	1.7
	(24.1)	(19.5)	(7.4)	(15.5)	(12.4)	(4.0)
CKD2.2 CONTINUUM	3.8	3.4	1.1	1.5	1.4	0.7
	(8.7)	(7.7)	(4.8)	(3.3)	(3.0)	(1.9)

HT96: HITRAN96 spectral database.
WEAK: HT96 plus theoretical weak lines.
COR: HT96 with corrections of Giver *et al.* (2000).
ESA-WVR: new database.
Note: numbers in brackets refer to the spectral range 1000–22 700 cm^{-1}.

The CKD2.2 continuum produces much less absorption than CKD0 because of a large reduction in the foreign-broadened component, while the self-broadened continuum is largely unaffected. In fact, the impact of ESA-WVR is now somewhat larger than that of the estimated continuum absorption. However, as the continuum model was derived by empirical fitting of the difference between theoretical results using HITRAN and observed transmittances, it should not be viewed as an objective measure of any physical

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manifestation of a continuum. Indeed, the absorption estimated due to the CKD2.2 continuum is fairly similar to the difference between that derived using ESA-WVR and Giver *et al.*'s (2000) updated version of HITRAN. This suggests that the disparity between observations and (updated) HITRAN can be explained entirely by additional weak lines without recourse to a continuum model in this spectral region.

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