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A scenario of planet erosion by coronal radiation⋆ *(Corrigendum)*

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ABSTRACT

In the notes to Table 1, a unit conversion was incorrect. The text should read 1 M_J Gyr^{-1} = 6.02e + 13 g s^{-1}. As a consequence in the 3rd paragraph of Sect. 3, the mass loss taking place in τ Boo b should be $\dot{M}_X$ = 0.011 M_J Gyr^{-1} for ρ = 1 g cm^{-3}, or $\dot{M}_X$ = 3.4 $M_\oplus$ Gyr^{-1} in Earth mass units.
Independently, the values of "log F_X accumulated", in Col. 12 of Table 1 were calculated using an obsolete formula and were thus slightly underestimated, generally by $\lesssim$0.2. As a consequence Fig. 2 should show all values at a slightly higher position, although this is of no relevance for the conclusions of the paper. Table 1 and Fig. 2 are reproduced in their correct version here. At the end of 5th paragraph of Sect. 2, the hard limit of X-ray flux accumulated after 10 Gyr should be $\sim 10^{22.14}$ erg cm^{-2}, instead of $\sim 10^{21.76}$ erg cm^{-2}, and our highest flux is now $10^{21.23}$ erg cm^{-2} instead of $10^{21.05}$ erg cm^{-2}.

Key words. planetary systems – stars: coronae – astrobiology – X-rays: stars – errata, addenda

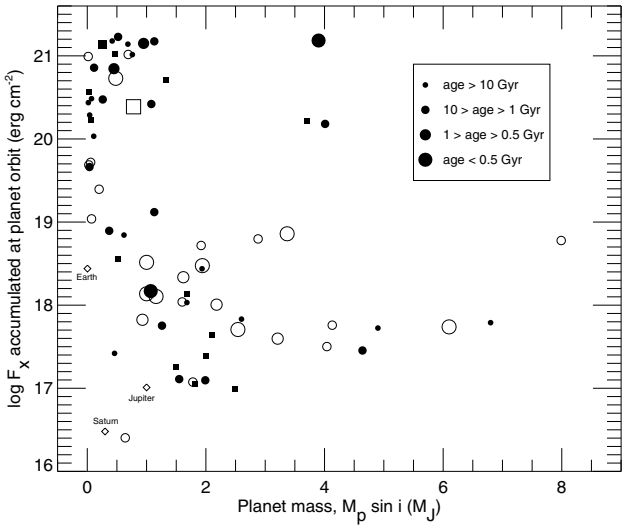

Fig. 2. Distribution of planetary masses ($M_p \sin i$) with the X-ray flux accumulated at the planet orbit since an age of 20 Myrs to the present day (see text). Symbols as in Fig. 1.

Page 2 is available in the electronic edition of the journal at http://www.aanda.org

⋆ Table 1 is only available in electronic form at http://www.aanda.org

Table 1. X-ray flux (0.12−2.48 keV) of stars with exoplanets[a] .

Planet name	Sp. type (star)	Measured coordinates α, δ (J2000.0)		Stellar distance (pc)	log L_X (erg s^{-1})	S/N (L_X)	Age (Gyr)	$M_p \sin i$ (m_J)	a_p (AU)	log F_X (erg s^{-1}cm^{-2})	log $F_X$accum. (erg cm^{-2})	ρM_X (g^2 s^{-1} cm^{-3})[c]	Instr.[b]	Date	t (ks)
14 Her b	K0V	16:10:24.6	+43:49:01	18.10 ± 0.19	26.92	4.9	7.47	4.64	2.77	−1.41	17.45	1.7e+06	EPIC	2005/09/11	5
16 Cyg B b	G2.5V	19:41:48.9	+50:31:28	21.41 ± 0.23	<25.48	1.7	<15	1.68	1.68	<−2.43	18.03	(1.7e+05)	EPIC	2008/11/08	11
2M1207 b	M8	12:07:33.5	−39:32:54	52.40 ± 1.10	<26.24	0.4	<15	4.00	46.00	<−4.53	12.85:	(1.3e+03)	ACIS	2003/03/03	50
47 UMa b	G0V	10:59:28.4	+40:25:46	13.97 ± 0.13	25.45	4.8	<15	2.60	2.11	−2.65	17.83	1.0e+05	EPIC	2006/06/11	8
47 UMa c								0.46	3.39	−3.07	17.42	3.9e+04			
51 Peg b	G2IV	22:57:28.1	+20:46:08	15.36 ± 0.18	<26.26	2.6	<15	0.47	0.05	<1.38	21.03:	(1.1e+09)	ACIS	2008/12/06	5
β Pic b	A6V	05:47:17.1	−51:03:59	19.30 ± 0.19	25.63	5.7	<15	8.00	8.00	−3.62	16.94	1.1e+04	EPIC	2004/01/04	68
ϵ Eri b	K2V	03:32:55.9	−09:27:31	3.20 ± 0.01	28.20	296.7	1.12	1.55	3.39	−0.31	17.11	2.2e+07	EPIC	2003/01/19	12
GJ 436 b	M2.5	11:42:11.6	+26:42:16	10.20 ± 0.24	25.96	14.5	<15	0.07	0.03	1.60	20.48	1.8e+09	EPIC	2008/12/10	30
GJ 674 b	M2.5	17:28:40.3	−46:53:50	4.54 ± 0.03	27.73	178.5	2.84	0.04	0.04	3.09	19.66	5.6e+10	EPIC	2008/09/05	44
GJ 86 b	K1V	02:10:28.1	−50:49:19	11.00 ± 0.07	<27.42	43.0	3.56	4.01	0.11	<1.89	20.18	(3.5e+09)	EPIC	2008/06/10	15
GJ 876 b	M4V	22:53:17.3	−14:15:55	4.72 ± 0.05	26.16	34.7	<15	1.93	0.21	0.08	18.44	5.4e+07	EPIC	2008/11/14	23
GJ 876 c								0.62	0.13	0.48	18.84	1.4e+08			
GJ 876 d								0.02	0.02	2.07	20.44	5.3e+09			
HD 4308 b	G5V	00:44:39.4	−65:39:05	21.90 ± 0.27	<25.84	2.5	<15	0.04	0.12	<0.24	20.29	(7.9e+07)	EPIC	2008/12/02	9
HD 20367 b	G0	03:17:40.1	+31:07:37	27.00 ± 0.79	29.30	139.6	0.22	1.07	1.25	1.65	18.17	2.0e+09	EPIC	2005/02/11	10
HD 46375 b	K1IV	06:33:12.4	+05:27:49	33.40 ± 1.19	27.16	7.3	5.23:	0.25	0.04	2.49	21.13:	1.4e+10	EPIC	2005/10/14	8
HD 49674 b	G5V	06:51:30.9	+40:52:03	40.70 ± 1.89	27.41	6.5	3.62	0.12	0.06	2.43	20.86	1.2e+10	EPIC	2006/04/10	8
HD 50554 b	F8	06:54:42.8	+24:14:43	31.03 ± 0.97	<26.59	2.7	12.21	4.90	2.38	<−1.61	17.72	(1.1e+06)	EPIC	2006/04/16	9
HD 52265 b	G0V	07:00:18.0	−05:22:01	28.00 ± 0.66	26.89	5.4	7.82	1.13	0.49	0.06	19.12	5.2e+07	EPIC	2008/09/19	9
HD 70642 b	G5IV-V	08:21:28.2	−39:42:18	29.00 ± 0.50	26.39	4.2	<15	2.00	3.30	−2.10	17.39:	3.6e+05	EPIC	2006/04/08	13
HD 75289 b	G0V	08:47:40.1	−41:44:14	28.94 ± 0.47	<26.16	2.2	<15	0.42	0.05	<1.38	21.18	(1.1e+09)	EPIC	2005/04/28	8
HD 93083 b	K3V	10:44:20.9	−33:34:38	28.90 ± 0.84	26.90	6.3	7.71	0.37	0.48	0.09	18.89	5.6e+07	EPIC	2008/05/26	12
HD 99492 b	K2V	11:26:45.9	+03:00:24	18.00 ± 1.07	26.55	11.3	13.00	0.11	0.12	0.92	20.03	3.7e+08	EPIC	2008/06/19	24
HD 102195 b	K0V	11:45:42.2	+02:49:16	28.98 ± 0.97	28.43	53.1	0.80	0.45	0.05	3.60	20.85	1.8e+11	EPIC	2008/06/15	18
HD 108147 b	F8/G0V	12:25:46.2	−64:01:20	38.57 ± 1.03	27.39	4.2	3.74	0.26	0.10	1.92	20.48	3.7e+09	EPIC	2002/08/10	6
HD 111232 b	G8V	12:48:51.8	−68:25:29	29.00 ± 0.67	<26.08	0.9	<15	6.80	1.97	<−1.96	17.79	(4.9e+05)	EPIC	2008/07/29	9
HD 114386 b	K3V	13:10:39.7	−35:03:20	28.00 ± 1.04	26.53	3.0	13.44	1.24	1.65	−1.36	17.76	2.0e+06	EPIC	2008/07/29	9
HD 130322 b	K0V	14:47:32.8	−00:16:54	30.00 ± 1.34	27.26	7.7	4.55	1.08	0.09	1.92	20.42	3.7e+09	EPIC	2005/07/21	7
HD 160691 b	G3IV-V	17:44:08.7	−51:50:04	15.30 ± 0.19	<26.16	2.2	<15	1.68	1.50	<−1.64	18.13:	(1.0e+06)	EPIC	2008/10/02	10
HD 160691 c								0.03	0.09	<0.79	20.57:	(2.8e+08)			
HD 160691 d								0.52	0.92	<−1.22	18.56:	(2.7e+06)			
HD 160691 e								1.81	5.24	<−2.73	17.05:	(8.4e+04)			
HD 179949 b	F8V	19:15:33.3	−24:10:46	27.00 ± 0.59	28.38	100.9	0.86	0.95	0.05	3.62	21.15	1.9e+11	ACIS	2005/05/29	150
HD 187123 b	G5	19:46:57.9	+34:25:09	50.00 ± 1.63	<26.80	1.4	8.91	0.52	0.04	<2.11	21.23	(5.7e+09)	EPIC	2006/04/21	16
HD 187123 c								1.99	4.89	<−2.03	17.10	(4.2e+05)			
HD 189733 b	K1-K2	20:00:43.8	+22:42:34	19.30 ± 0.32	28.18	92.5	1.15	1.13	0.03	3.75	21.17	2.5e+11	EPIC	2007/04/17	43
HD 190360 b	G6IV	20:03:37.9	+29:53:45	15.89 ± 0.16	<26.38	1.4	<15	1.50	3.92	<−2.26	17.25:	(2.5e+05)	EPIC	2005/04/25	4
HD 190360 c								0.06	0.13	<0.71	20.22:	(2.3e+08)			
HD 195019 b	G3IV-V	20:28:18.6	+18:46:10	37.36 ± 1.24	<26.52	2.7	13.50:	3.70	0.14	<0.79	20.22:	(2.8e+08)	EPIC	2006/04/24	10
HD 209458 b	G0V	22:03:10.8	+18:53:03	47.00 ± 2.22	<26.12	1.8	<15	0.69	0.05	<1.32	21.14	(9.5e+08)	EPIC	2006/11/15	31
HD 216435 b	G0V	22:53:38.1	−48:35:55	33.30 ± 0.81	27.74	11.9	2.22	1.26	2.56	−0.53	17.75	1.3e+07	EPIC	2006/04/21	7
HD 216437 b	G4IV-V	22:54:39.6	−70:04:26	26.50 ± 0.41	26.62	4.0	11.69:	2.10	2.70	−1.69	17.65:	9.1e+05	EPIC	2005/04/13	6
HD 217107 b	G8IV	22:58:15.7	−02:23:43	19.72 ± 0.29	<25.30	2.3	<15	1.33	0.07	<0.12	20.71:	(5.9e+07)	EPIC	2005/05/16	7
HD 217107 c								2.49	5.27	<−3.60	17.00:	(1.1e+04)			
HD 330075 b	G5	15:49:37.7	−49:57:48	50.20 ± 3.75	26.51	3.1	13.80	0.76	0.04	1.79	21.02	2.8e+09	EPIC	2005/08/07	16
τ Boo b	F7V	13:47:15.9	+17:27:22	15.60 ± 0.17	28.94	317.4	0.37	3.90	0.05	4.16	21.18	6.5e+11	EPIC	2003/06/24	56
VB 10 b	M8V	19:16:57.3	+05:08:49	6.09 ± 0.13	25.83	20.4	<15	6.40	0.36	−0.73	13.88:	8.3e+06	EPIC	2008/04/07	28
						ROSAT data									Notes
61 Vir b	G5V	13:18:24.3	−18:18:40	8.52 ± 0.05	26.88	5.7	7.96	0.02	0.05	2.03	20.99	4.8e+09	PSPC		
61 Vir c								0.06	0.22	0.75	19.72	2.5e+08			
61 Vir d								0.07	0.48	0.07	19.04	5.3e+07			
BD-10 3166 b	G4V	10:58:28.8	−10:46:13	66:	<29.20	3.1	0.25	0.48	0.05	<4.42	20.73	(1.2e+12)	PSPC	+dM5, unc. *d*	
γ Cep b	K2V	23:39:20.8	+77:37:56	13.79 ± 0.10	27.33	8.1	4.08	1.60	2.04	−0.74	18.04	8.1e+06	PSPC		
GJ 832 b		21:33:34.0	−49:00:32	4.94 ± 0.03	26.78	7.3	9.24	0.64	3.40	−1.73	16.40	8.3e+05	PSPC		
GJ 3021 b	G6V	00:16:12.7	−79:51:04	17.62 ± 0.16	<28.95	7.8	0.37	3.37	0.49	<2.12	18.86	(5.9e+09)	PSPC	dM4 in field	
HD 3651 b	K0V	00:39:21.8	+21:15:01	11.00 ± 0.09	27.27	4.5	4.46	0.20	0.28	0.91	19.39	3.7e+08	PSPC		
HD 10647 b	F8V	01:42:29.3	−53:44:27	17.30 ± 0.19	28.31	N/A	0.95	0.93	2.03	0.24	17.82	7.9e+07	PSPC		
HD 38529 b	G4IV	05:46:34.9	+01:10:05	42.43 ± 1.66	28.96	5.3	0.36:	0.78	0.13	3.29	20.39:	8.7e+10	PSPC		
HD 41004 A b	K1V	05:59:49.6	−48:14:22	42.50 ± 1.89	<29.31	7.5	0.22	2.54	1.64	<1.43	17.71	(1.2e+09)	PSPC	dM2 in field	
HD 48265 b	G5V	06:40:01.7	−48:32:31	87.40 ± 5.50	29.53	6.0	0.16	1.16	1.51	1.72	18.10	2.4e+09	PSPC		
HD 70573 b	G1-1.5V	08:22:50.0	+01:51:33	45.7 :	29.09	4.0	0.30	6.10	1.76	1.15	17.74	6.3e+08	PSPC	uncertain *d*	
HD 87883 b	K0V	10:08:43.1	+34:14:32	18.10 ± 0.31	27.60	N/A	2.73	1.78	3.60	−0.96	17.07	4.9e+06	PSPC		
HD 89744 b	F7V	10:22:10.6	+41:13:46	40.00 ± 1.06	28.11	7.6	1.28	7.99	0.89	0.76	18.78	2.6e+08	PSPC		
HD 128311 b	K0V	14:36:00.6	+09:44:47	16.60 ± 0.27	28.48	7.5	0.74	2.18	1.10	0.95	18.01	4.0e+08	PSPC		
HD 128311 c								3.21	1.76	0.54	17.60	1.6e+08			
HD 142415 b	G1V	15:57:40.8	−60:12:00	34.20 ± 1.00	28.65	5.0	0.57	1.62	1.05	1.16	18.34	6.4e+08	PSPC		
HD 147513 b	G3/G5V	16:24:01.3	−39:11:34	12.90 ± 0.14	28.90	16.2	0.40	1.00	1.26	1.25	18.14	8.0e+08	PSPC		
HD 150706 b	G0	16:31:17.6	+79:47:23	27.20 ± 0.42	28.82	12.0	0.45	1.00	0.82	1.54	18.52	1.6e+09	PSPC		
HD 169830 b	F8V	18:27:49.5	−29:49:00	36.32 ± 1.20	28.26	16.8	1.02	2.88	0.81	0.99	18.80	4.4e+08	PSPC		
HD 169830 c								4.04	3.60	−0.30	17.50	2.2e+07			
HD 285968 b	M2.5V	04:42:55.8	+18:57:29	9.40 ± 0.22	27.41	3.2	3.62	0.03	0.07	2.32	19.69	9.4e+09	PSPC		
HR 810 b	G0V	02:42:33.5	−50:48:01	15.50 ± 0.16	28.79	7.0	0.47	1.94	0.91	1.42	18.48	1.2e+09	PSPC		
υ And b	F8V	01:36:47.8	+41:24:19	13.47 ± 0.13	<28.24	6.5	1.06	0.69	0.06	<3.25	21.02	(7.9e+10)	PSPC	K-M in field	
υ And c								1.92	0.83	<0.95	18.72	(4.0e+08)			
υ And d								4.13	2.51	<−0.01	17.76	(4.4e+07)			

Notes. [a] Planet data from The Extrasolar Planets Encyclopedia (http://exoplanet.eu). [b] *XMM-Newton*, Chandra or ROSAT instrument used for the X-ray flux. [c] 1 M_J Gyr^{-1} = 6.02e + 13 g s^{-1}.