



Correction to “New parameterization of sulfuric acid-ammonia-water ternary nucleation rates at tropospheric conditions”

J. Merikanto, I. Napari, H. Vehkamäki, T. Anttila, and M. Kulmala

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[1] In the paper “New parameterization of sulfuric acid-ammonia-water ternary nucleation rates at tropospheric conditions” by J. Merikanto et al. (*J. Geophys. Res.*, *112*, D15207, doi:10.1029/2006JD007977, 2007) the reported coefficients in the parameterized equation are numerically inaccurate for the calculation of ternary nucleation rates. The coefficients were given with six significant digits. However, this precision is not sufficient. Coefficients with 16 significant digits are given in Table 1. We also provide a Fortran code that calculates the reported parameterized nucleation rates and critical cluster sizes accurately (see auxiliary material).¹

[2] Also, the term containing f_{15} in equation (8) in paragraph 18 should be multiplied by RH . The correct equation is

$$\begin{aligned} \ln J_{\text{fit}} = & -12.861848898625231 + f_1(T)RH + f_2(T) \ln RH \\ & + f_3(T) \ln c + f_4(T) \ln^2 c + \frac{f_5(T)}{\ln^2 c} + f_6(T)\xi \\ & + f_7(T) \ln \xi + f_8(T) \ln^2 \xi + f_9(T) \ln^3 \xi \\ & + f_{10}(T)RH \ln \xi + f_{11}(T) \ln c \ln \xi + f_{12}(T) \frac{\ln \xi}{\ln c} \\ & + f_{13}(T) \frac{\ln RH}{\ln c} + f_{14}(T) \ln RH \ln \xi + \frac{f_{15}(T)RH}{\xi^3 \ln c} \\ & + f_{16}(T) \frac{\ln^2 \xi}{\ln c} + f_{17}(T) \frac{\ln^3 \xi}{\ln c} + f_{18}(T) \ln c \ln^2 \xi \\ & + f_{19}(T) \ln^2 c \ln^3 \xi + f_{20}(T) \ln RH \ln^3 \xi. \end{aligned}$$

Table 1. Coefficients of Polynomials $f_i(T)$ With 16 Significant Digits^a

i	a_{i0}	a_{i1}	a_{i2}	a_{i3}
1	-358.2337705052991	4.8630382337426985	-0.02175548069741675	0.00003212869941055865
2	-980.923146020468	10.054155220444462	-0.03306644502023841	0.000034274041225891804
3	1200.472096232311	-17.37107890065621	0.08170681335921742	-0.00012534476159729881
4	-14.833042158178936	0.2932631303555295	-0.0016497524241142845	2.844074805239367E-6
5	-4.39129415725234E6	56383.93843154586	-239.835990963361	0.33765136625580167
6	4.905527742256349	-0.05463019231872484	0.00020258394697064567	-2.502406532869512E-7
7	-231375.56676032578	2919.2852552424706	-12.286497122264588	0.017249301826661612
8	75061.15281456841	-931.8802278173565	3.863266220840964	-0.005349472062284983
9	-3180.5610833308	39.08268568672095	-0.16048521066690752	0.00022031380023793877
10	-100.21645273730625	0.977886555834732	-0.0030511783284506377	2.967320346100855E-6
11	5599.912337254629	-70.70896612937771	0.2978801613269466	-0.00041866525019504
12	2.360931724951942E6	-29752.130254319443	125.04965118142027	-0.1752996881934318
13	16597.75554295064	-175.2365504237746	0.6033215603167458	-0.0006731787599587544
14	-89.38961120336789	1.153344219304926	-0.004954549700267233	7.096309866238719E-6
15	-629.7882041830943	7.772806552631709	-0.031974053936299256	0.00004383764128775082
16	-732006.8180571689	9100.06398573816	-37.771091915932004	0.05235455395566905
17	40751.075322248245	-501.66977622013934	2.063469732254135	-0.002836873785758324
18	-1911.0303773001353	23.6903969622286	-0.09807872005428583	0.00013564560238552576
19	2.792313345723013	-0.03422552111802899	0.00014019195277521142	-1.9201227328396297E-7
20	3.1712136610383244	-0.037822330602328806	0.0001500555743561457	-1.9828365865570703E-7

^aRead E-x as 10^{-x}.

The neglect of RH multiplier causes a minor inaccuracy in the parameterization.

[3] After the publication a number of people contacted us directly for an electronic copy of the parameterization. The

Fortran code in the auxiliary material is the same as provided earlier.

[4] We thank Robert Elleman (U.S. Environmental Protection Agency) for bringing these issues to our attention.