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Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
1	Global Volcanism Program (2013) [Volcanoes of the World, 4th ed.]	"Start date: 1831, Stop date: Unknown, Eruption Certainty: Confirmed, VEI: 4?, Evidence: Historical Observations, Activity Area or Unit: Babuyan Claro" (Holocene Spreadsheet' downloadable from the GVP database) NB When viewing the eruptive history of Babuyan Claro volcano through the 'Volcano Search' option of the GVP database, a VEI = 4 (without the question mark modifier) is presented. However this is seemingly an artefact of the web interface and the VEI = 4? presented in the authoritative Holocene spreadsheet data downloadable from the GVP database is the correct value (pers. comm. Dr. Ben Andrews, Smithsonian Institution, 28/04/2016).	S	'References' under 'General Information'
2	Siebert et al. (2010) [Volcanoes of the World, 3rd ed.]	"Start: 1831, Duration:?, Volcano Name: Babuyan Claro (Luzon-N of), Number: 0704-03-, VEI: 4?, Vol W/T: -/8" (p. 260)	S	Standard catalogues of historical volcanism (p. 1), 'References' (pp. 479 et seq)
3	PHIVOLCS (2008)	"Name: Babuyan Claro, Year: 1831, Site: Crater, Eruption Character: Explosive."	S	Van Padang (1953)
4	Simkin and Siebert (1994) [Volcanoes of the World, 2nd ed.]	"Start: 1831, Duration:?, Volcano Name: Babuyan Claro (Luzon-N of), Number: 0704-03-, VEI: 4?, Vol W/T: -/8" (p. 207)	S	Standard catalogues of historical volcanism (p. 1), 'References' (pp. 303 et seq)
5	Simkin et al. (1981) [Volcanoes of the World, 1st ed.]	"Volcano Name: BABUYAN CLARO (LUZON IS-N OF), Number: 0704-03" (p. 64) "Volcano Name: SMITH VOLCANO (LUZON IS-N OF), Number: 0704-04-, START: 1831, ERUPTIVE CHARACTERISTICS [Three symbols: Central crater eruption, normal explosions, destruction of land, property], VEI: 3?, Vol LT: -8 [no recorded lava volume, 0.1 km ³ tephra" (p. 64)	S	Standard catalogues of historical volcanism (p. 1), 'Bibliography' (pp. 215 et seq)
6	COMVOL (1981)	"Name: Babuyan Claro...Its first eruption was reported in 1831."	S	Various late C19 th and C20 th sources including Van Padang (1953), Saderra Masó (1924), Smith (1924), Saderra Masó (1904).
7	MacDonald (1972)	N.B. No reference to an 1831 eruption of Babuyan Claro.	n/a	n/a
8	Lamb (1970)	"vii-viii.1831..Babuyan (Babujan), Philippine Is. (H, K, S, Sh)..19°N 122°E...(Sapper's assessment) b ₂ ...d.v.l./E _{max} = 300" (p. 514) "...The Babuyan eruption is generally accepted as a great one." (p. 515)	S	Humphreys (1940) Shaw (1936) Sapper (1917, 1927) Symons (1888)
9	Van Padang (1953) [CAWI, Part II: Philippine Islands and Cochin China]	"I. Name and location...BABUYAN CLARO (7.4-3)" (p. 42) "I. Name and location...SMITH VOLCANO (7.4-4)...III. Volcanic activity. Some of the older eruptions may have been of Babuyan Claro (7.4-3)...1831 [Three symbols: Eruption in the central crater, normal explosions, destruction of arable land]." (p. 43)	S	Becker (1901) Smith (1924) Saderra Masó (1905, 1924, 1925) Alvir (1928)

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
10	Humphreys (1940)	"At any rate, volcanic dust is so fine, and the upper atmosphere above 11 km so free from moisture and vertical convection, that once such dust is thrown into this region, as it obviously was by the explosions of Skaptar Jokull, and Asamayama, in 1783; Babuyan, in 1831...it must require, as a rule, because of its slow descent, from 1 to 3 years to get back to the earth." (pp. 593-594) "Date: 1831-1832. .Nature of Discrepancy: Cold...Probable Cause:...Babujan Islands, 1831" (p. 615)	S	-
11	Shaw (1936)	"Volcanic eruptions since A.D. 1800...1831 Babuyan Claro." (v.2, p. 25)	S	-
12	Alvir (1928)	"Babuyan Claro - This volcano was reported to have erupted in 1919." (p. 758)	n/a	n/a
13	Sapper (1927)	"Zum philippinischen System (1) gehören folgende Vulkanzonen: [...] 5. Babuyan Claro, 1000 m. in 19o 40' N. Br., 121o 56' O.L., hatte 1831 heftigen A., dessen Feinaschen in Europa Dämmerungsercheinungen verursacht haben dürften (neuerdings bezweifelt). Tätig um 1860. 1917 und 1918 Anzeichen neuer Tätigkeit. [...] (1) Neue nachrichten in M.Saderra Masó, Active Philippine Volcanoes (Bull. Weather Bureau April 1922) Manila, Auszug in Bull. volcanologique 1925, S. 306-310." (p. 320) [Translation: "The following volcanic zones belong to the Philippine system (1): [...] "5. Babuyan Claro, 1000 m...underwent a powerful eruption in 1831, whose fine ashes could have caused the twilight effects in Europe (recently questioned). [...] (1) New information in M.Saderra Masó, Active Philippine Volcanoes (Bull. Weather Bureau April 1922) Manila, Summary in Bull. volcanologique 1925, S. 306-310."] NB. It is interesting that Sapper introduces the phrase 'recently questioned' to his 1927 entry for this eruption. He cites only Saderra Masó (1922), the summary of which presented in Saderra Masó (1925) states that a precise knowledge (The)-295.89998nse.51435.79999(have0(rate.)-299)on)837gigue	n/a	

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Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
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Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
		the production of over 1 or 1/10 km ³ of lava, b ₁ b ₂ of the same amount of tephra.		

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
		"(3) Landgrebe, l.c., p. 348, according to Meyen, Reise um die Erde, v. II, p. 184. De Buch, l.c., p. 438, same source. (4) Cosmos, v. IV, p. 421"		
33	Von Humboldt (1859) (see von Humboldt 1858)			
34	Von Humboldt (1858)	"Die kleinen Baschi-Inseln und die Babuyanan, welche noch 1831 nach Meyen's Zeugniß einen heftigen Feuersausbruch erlitten, verbinden Formosa mit den Philippinen.." (v. 4, p. 404) [Translation: "The small Baschi-islands and the Babuyans, which according to Meyen's testimony underwent a powerful fiery eruption in 1831, connect Formosa with the Philippines..."]	S	Meyen (1835)
35	Landgrebe (1855)	"8. Die Insel Claro Babuyan. Sie liegt in der Mitte zwischen den Bashi-Inseln und Luzon, oberhalb Camiguin. Auf ihrer Südspitze, unter 19 ° 27' n. Br. und 119 ° 42' östl. L., bemerkt man einen mehrere tausend Fuss hohen Vulcan, der nach Meyen's Zeugniß (s. dessen Reise Um die Erde. Bd. II. S. 184) im J. 1831 einen so heftigen Ausbruch hatte, dass die Bewohner der Insel sich zur schnellsten Flucht genöthigt sahan, um dem sichern Verderben zu entgehen." (p. 348) [Translation: "8. Babuyan Claro island. This is located in the middle between the Bashi-islands and Luzon, above Camiguin. At its southern point...a volcano several thousand feet high can be seen, which according to Meyen's testimony (see his Voyage around the World, Volume II, Page 184) underwent such a powerful eruption in 1831, that the inhabitants of the island had to flee as quickly as possible, in order to escape from their certain destruction."] NB. The reference to v. 2, p. 184 of Meyen (1835)		

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
38	Von Buch (1836)	<p>to Meyen's Reise um die Welt [sic].</p> <p>"17° Volcan de l'île de Babujan, Lat. 19 ° 27' N.; Long. 119 ° 42' 1/4. E. de Paris. Ce volcan qui a quelques mille pieds de hauteur, est, situé dans la partie ouest de l'île. Une grande eruption qui eut lieu en 1831, força les habitants à prendre la fuite et à abandonner l'île (Meyen, Voyage, II, 181)." (p. 438)</p> <p>[Translation: "17 ° Volcano on the island of Babujan... This volcano, which is some several thousand feet high, is located at the western end of the island. A great eruption, which took place in 1831, forced the inhabitants to take flight and abandon the island (Meyen, Voyage, II, 181)."]</p>	S	Meyen (1835)
39	Meyen (1835)	<p>"In der Nacht zum 7ten August näherten wir uns den Bashee-Inseln, deren Länge noch auf allen Karten, die wir an Bord der Prinzess hatten, verschiednen angegeben war. Wir wählten die Strasse Balingtang zur Durchfahrt und hatten am folgenden Morgen die Insel Babuyan zur Linken, und die Insel Balingtang zur Rechten im Gesicht. Die Berge von Babuyan können einige Tausend Fuss an Höhe übersteigen, ihre westliche Spitze bildet einen schroffen Kegeberg, der wahrscheinlich der Vulcan ist, welcher noch vor kurzer Zeit die Bewohner der Insel zur Flucht getrieben hatte. Die Balingtang-Insel hat in Ihre Nähe sehr merkwürdig gestaltete Klippen..." (v. 2, p. 181)</p> <p>[Translation: "During the night before the 7th August, we approached the Bashee-islands, the latitude of which was recorded differently on all the maps aboard the Princess. We chose to approach through the Balingtang Straits and, on the following morning, had the island of Babuyan in view on the left and the island of Balingtang on the right. The mountains of Babuyan could exceed a few thousand feet in height, their western peak forming a steep cone, which is probably the volcano which only a short time ago had caused the inhabitants of the island to flee. Balingtang island has some strangely shaped rocks in its vicinity..."]</p> <p>N.B. On his approach to Babuyan Claro island, Meyen reported the observation of a solar halo and an extended twilight:</p> <p>"Am 3ten August... Kurz vor Mittags-Zeit, als uns die Sonne fast im Zenith stand, bildete sich ein Dunstring um dieselbe, dessen Radius 21 1/2° betrug; die Farbe des Ringes war nicht so bestimmt, wie die eines Regenbogens, und im Innern der Ringes befand sich eine Wolkenmasse, welche dunkler war, als die des umgebenden Himmels, durch welche wir die Sonne kaum durchsehen konnten. Es befand sich Niemand an Bord des Schiffes, dem ein solcher Sonnen-Ring, welcher etwas Ähnlichkeit mit dem</p>	P / S	n/a

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

Table 1 Historical sources analysed for the 1831 eruption of Babuyan Claro. The sources are listed in reverse year order. All translations are one of the author's (CG) own except for the translation of source no. 41 (Continued)

No.	Source	Text	Source Type: Primary / Secondary	Earlier source(s) identified.
40	Horsburgh (1817)	<p>"CLARO BABUYAN, or OLD BABUYAN, in lat. 19° 37' N., lon. 122° 17' E., distant about 10 leagues to the eastward of Calayan, is the most northerly and highest of these islands, in extent about 2 or 2 1/2 leagues. There is a reef projecting from the West end of the island, and the mount on this part is a volcano; betwixt which, and the mountains on the eastern part, there is a concave curve in the form of a crescent, when viewed from the northward or southward: but when the island is seen at a great distance from the eastward, it appears as one round mountain, with a detached hummock to the northward." (p. 328)</p>	n/a	n/a
41	De Salazar (1742)	<p>"CAP. XXIII. FUNDACION DE LA MISSION de Battianes, y muerte de los Padres Fr. Matheo Gonzalez y Fr. Juan Rois...El año de 1680...el año siguiente...Haban sumamente afligidos, y atemorizados con el mucho suego, piedras, y cenizas, que actualmente arrojaba de sí un Volcan, que ay en un monte alto de dicha Isla, que à todos causaba terrible horror, y espanto: y con la ocasion de la pena, en que se hallaban les comenzò à predicar el Padre Fr. Matheo, explicandoles las penas de el inferno, y lo incomprehsible de los tormentos, que han de padecer los condenados por una eternidad, abrassandose en sus vorazes llamas, especialmente los que siendo Christianos, avian apostatado de la Feè, y eran causa de que se condenassen sus hijos, y nietos, por tenerlos en aquella Isla, tan apartados de la vista, y comunicacion de el Ministro, que pudiesse doctrinarlos, y bautizarlos. Estando actualmente predicando el Padre Fr. Matheo, era grande el estruendo, y ruido de el Volcan, como de gruesos tiros de artilleria, con lo qual fue tan grande la conmocion, que la doctrina de el Padre causò en todos ellos, que arrassados en lagrimas sus ojos, dieron clarissimas muestras de un grande arrepentimiento de sus culpas, y se rindieron à la voluntad de el Padre Fr. Matheo, determinandos à dexar aquella Isla, y acompañar al dicho Religioso, para que los restituriesse à la Iglesia, como lo executaron puntualmente, sin quedar ni uno solo en toda la Isla. Vinose el Padre con ellos à Cagayan..." (pp. 518-520)</p> <p>[Translation (Montse Manzano Fernandez): "Chapter</p>		

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White DE, White JW, Steig EJ, Barlow LK. Reconstructing annual and seasonal