Companion File for Brazilian Soils Maps

The soil maps of Brazil are digital versions of the MAPA DE SOLOS DO BRASIL (EMBRAPA, 1981), digitized at the U.S. Geological Survey's EROS Data Center, Sioux Falls, South Dakota, in 1992. The files were processed with ArcInfo, and based on the Woods Hole Full Soil Map Unit Classifications.

There are three soil maps available with three different classifications: one general 19-class, one composite 70-class, and one composite 249 detailed class.

Spatial Extent of the Data for Brazil:

min.X: -73.9777
max.X: -29.29609
min.Y: -33.77586
max.Y: 5.239861

Brazil_Soils_Map_19class.tif:

A digitized general soil map of Brazil. Data are integer class data with values ranging from 1 through 19. Missing data and ocean mask are represented by the value -9999.

Soil Map Unit Generalization -- 19 class generalization

ID	CODE	NAME
1	A	Alluvial soils
2	B	Brunizens
3	C	Cambisols
4	E	Regosols
5	F	Hydromorphic laterites
6	G	Gley soils
7	H	Saline soils
8	I	Lateritic Concretionary soils
9	L	Latosols
10	N	Brown earths not calcified
11	P	Podzolic soils
12	Q	Deep sandy-quartz soils
13	R	Litholic soils
14	S	Solodized Solonetz
15	T	Stuctured purple earths (terra roxa)
16	V	Vertisols
17	W	Planosols
18	X	Water
19	Z	Podsol

Brazil_Soils_Map_70class.tif:

A digitized composite soil map of Brazil. Data are integer class data with values ranging from 1 through 70. Missing data and ocean mask are represented by the value -9999.

The classification codes are based on the Woods Hole full Soil Map Unit classifications provided with this document.

Map Unit Classification and Composite Soil Types: (See Composite Soil Definition Table below)

ID	CODE	NAME
1	Ade1-2	Dystrophic and eutrophic alluvial soils
2	Ae1-4	Eutrophic alluvial soils
3	B1-2	Brunizem
4	Bv1-4	Red Brunizem
5	Cd1-5	Dystrophic Cambisol Tb
6	Cd6-7	Dystrophic Cambisol TbTa
7	Cde1-2	Dystrophic and eutrophic Cambisol TbTa
8	Ce1	Eutrophic Cambisol Tb
9	Ce2-4	Eutrophic Cambisol TbTa
10	Ce5-7	Eutrophic Cambisol Ta
11	Ch1-2	Humic Cambisol Tb
12	Ch3	Humic Cambisol TbTa
13	Ed	Dystrophic Regosol
14	Ede1-2	Dystrophic and eutrophic Regosol
15	Ee1-3	Eutrophic Regosol
16	Fd1-6	Dystrophic hydromorphic laterite Tb
17	Fde	Dystrophic and eutrophic hydromorphic laterite Ta
18	Fe	Eutrophic hydromorphic laterite TbTa
19	Fi1-3	Indiscriminate hydromorphic laterite
20	Gd1-5	Dystrophic gley soils
21	Gde1-2	Dystrophic and eutrophic gley soils
22	Ge	Eutrophic gley soils
23	H1-3	Solonchak
24	Hc	Indiscriminate coastal saline soils
25	Id1-4	Dystrophic undivided concretionary soils
26	Ide	Dystrophic and eutrophic undivided concretionary soils
27	La1-8	Dystrophic yellow Latosol
28	Lb1-2	Dystrophic brown Latosol
29	Lh1-4	Dystrophic humic Latosol
30	Lld1-12	Dystrophic red-yellow Latosol
31	Llde1-2	Dystrophic and eutrophic red-yellow Latosol
32	Lrd1-4	Dystrophic purple Latosol
33	Lrde1-3	Dystrophic and eutrophic purple Latosol

ID	CODE	NAME
34	Lvd1-12	Dystrophic dark-red Latosol
35	Lvde	Dystrophic and eutrophic dark-red Latosol
36	Lve1-2	Eutrophic dark-red Latosol
37	N1-3	Non-calcic brown earths (indiscriminate)
38	Pbd	Dystrophic brown-grey Podzol
39	Pbe1-2	Eutrophic brown-grey Podzol
40	Pd1-16	Dystrophic red-yellow Podzol Tb
41	Pd17-22	Dystrophic red-yellow Podzol TbTa
42	Pe1-8	Eutrophic red-yellow Podzol Tb
43	Pe12-15	Eutrophic red-yellow Podzol Ta
44	Pe9-11	Eutrophic red-yellow Podzol TbTa
45	Ppd1-5	Dystrophic plinthic Podzol Tb
46	Ppe1-3	Eutrophic plinthic Podzol Tb
47	Ppe4	Eutrophic plinthic Podzol Ta
48	Q1-12	Dystrophic quartz sands
49	Qc1-4	Marine quartz sands
50	Qg1-3	Hydromorphic quartz sands
51	Rd1-6	Dystrophic litholic soils
52	Rde1-4	Dystrophic and eutrophic litholic soils
53	Re1-9	Eutrophic litholic soils
54	Rh1-2	Humic litholic soils
55	Rz1-2	Rendzina
56	S1-4	Solodised Solonetz (indiscriminate)
57	Tbd	Dystrophic structured brown earth
58	Tbde	Dystrophic and eutrophic structured brown earth
59	Trd	Dystrophic structured terra roxa
60	Trde	Dystrophic and eutropic structured terra roxa
61	Tre1-4	Eutrophic structured terra roxa
62	Tvde1-2	Dystrophic and eutrophic similar structured terra roxa
63	Tve1-6	Eutrophic similar structured terra roxa
64	V1-5	Vertisols (indiscriminate)
65	Water	Water
66	Wde	Dystrophic and eutrophic Planosol Tb
67	We1-3	Eutrophic Planosol Ta
68	Wm	Mollic Planosol
69	Ws1-5	Solodic Planosol
70	Z1-4	Podzol (indiscriminate)

Brazil_Soils_Map_249class.tif:

A digitized composite soil map of Brazil. Data are integer class data with values ranging from 1 through 249. Missing data and ocean mask are represented by the value -9999.

The classification codes are based on the Woods Hole full Soil Map Unit classifications provided with this document.

Map Unit Classification and Composite Soil Types: (See Composite Soil Definition Table below)

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
1	Ade1	Ade	Gd		
2	Ade2	Ade	Ws		
3	Ae1	Ae	CeTbTa		
4	Ae2	Ae	Ge		
5	Ae3	Ae	S		
6	Ae4	Ae	S	V	Ws
7	B1	B	V		
8	B2	B	Wm	V	
9	Bv1	Bv	PeTb		
10	Bv2	Bv	Re	PeTb	
11	Bv3	Bv	V	Ws	
12	Bv4	Bv	Wsm	Re	
13	Cd1	CdTb			
14	Cd2	CdTb	ChdTb	Rde	
15	Cd3	CdTb	Lld		
16	Cd4	CdTb	Rd		
17	Cd5	CdTb	Rd	Lld	
18	Cd6	CdTbTa	Lvd		
19	Cd7	CdTbTa	Pbd		
20	Cde1	CdTbTa			
21	Cde2	CdeTbTa	Rde	V	
22	Ce1	CeTb	Re		
23	Ce2	CeTbTa	Lle	Re	
24	Ce3	CeTbTa	PeTb		
25	Ce4	CeTbTa	Rde		
26	Ce5	CeTa			
27	Ce6	CeTa	PeTa		
28	Ce7	CeTa	Re		
29	Ch1	ChdTb	Lbd		
30	Ch2	ChdTb	Rhd		
31	Ch3	ChdTbTa	Pbd	PhdTa	
32	Ed	Ed	PdTb		
33	Ede1	Ede	FdTa		
34	Ede2	Ede	Ws	S	

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
35	Ee1	Ee			
36	Ee2	Ee	N	PeTb	
37	Ee3	Ee	Re		
38	Fd1	FdTb	Gd		
39	Fd2	FdTb	Id	Lld	
40	Fd3	FdTb	PpdTb		
41	Fd4	FdTb	Qgd	Qd	
42	Fd5	FdTb	Rd		
43	Fd6	FdTb	Z		
44	Fde	FdeTa	Ws		
45	Fe	FeTbTa	PpdTbTa		
46	Fi1	Fi	Gi	Ai	
47	Fi2	Fi	Qgd	Gi	
48	Fi3	Fi	Wi	Qd	
49	Gd1	Gd			
50	Gd2	Gd	Ade		
51	Gd3	Gd	Ade	Od	
52	Gd4	Gd	FdTb		
53	Gd5	Gd	Qgd		
54	Gde1	Gde	Ae		
55	Gde2	Gde	CeTa		
56	Ge	Ge	Ae	Ws	
57	H1	H			
58	H2	H	Hc	S	
59	H3	H	Qc		
60	Hc	Hc			
61	Id1	Id	FdTb	Lld	
62	Id2	Id	Lad		
63	Id3	Id	PdTb		
64	Id4	Id	Qd		
65	Ide	Ide	PeTb		
66	La1	Lad			
67	La2	Lad	FdTb		
68	La3	Lad	Id		
69	La4	Lad	Lld		
70	La5	Lad	PdTb		
71	La6	Lad	PpdTb		
72	La7	Lad	Qd		
73	La8	Lad	Z		
74	Lb1	Lbd			
75	Lb2	Lbd	Tbd	ChdTb	
76	Lh1	Lhd	CdTb		
77	Lh2	Lhd	ChdTbTa		
78	Lh3	Lhd	ChdTbTa	PhdTa	
79	Lh4	Lhd	Lld		

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
80	Lld1	Lld			
81	Lld2	Lld	CdTb		
82	Lld3	Lld	FdTb		
83	Lld4	Lld	Id		
84	Lld5	Lld	Lrde		
85	Lld6	Lld	Lvd		
86	Lld7	Lld	PdTb		
87	Lld8	Lld	PeTb		
88	Lld9	Lld	PpdTb	Id	
89	Lld10	Lld	Qd		
90	Lld11	Lld	Qd	Id	
91	Lld12	Lld	Rd		
92	Llde1	Llde	CeTbTa		
93	Llde2	Llde	PeTb		
94	Lrd1	Lrd			
95	Lrd2	Lrd	FdTb	Id	
96	Lrd3	Lrd	Trd		
97	Lrd4	Lrd	Trde		
98	Lrde1	Lrde			
99	Lrde2	Lrde	Qd		
100	Lrde3	Lrde	Tre		
101	Lvd1	Lvd			
102	Lvd2	Lvd	Lld		
103	Lvd3	Lvd	Lld	CdTb	
104	Lvd4	Lvd	Lld	Qd	
105	Lvd5	Lvd	Lrd		
106	Lvd6	Lvd	Lrde		
107	Lvd7	Lvd	PdTb		
108	Lvd8	Lvd	PdTb	CdTb	
109	Lvd9	Lvd	PdTb	PeTb	
110	Lvd10	Lvd	Qd		
111	Lvd11	Lvd	Qd	Lrd	
112	Lvd12	Lvd	Rd	PdTb	
113	Lvde	Lvde	Tve	PeTb	
114	Lve1	Lve	CeTbTa	PeTb	
115	Lve2	Lve	PeTb		
116	N1	N	PdTb		
117	N2	N	Re		
118	N3	N	Re	Ws	
119	Pbd	Pbd	ChdTbTa	Rhd	
120	Pbe1	Pbe	PdTb	Rde	
121	Pbe2	Pbe	PdTb	Wm	
122	Pd1	PdTb			
123	Pd2	PdTb	CdTb		
124	Pd3	PdTb	Gde		

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
125	Pd4	PdTb	Lad		
126	Pd5	PdTb	Lld		
127	Pd6	PdTb	Lld	CdTb	
128	Pd7	PdTb	Lld	Rd	
129	Pd8	PdTb	PeTb		
130	Pd9	PdTb	PeTb	Lld	
131	Pd10	PdTb	PeTb	Lvd	
132	Pd11	PdTb	PeTb	Rde	
133	Pd12	PdTb	PpdTb	FdTb	
134	Pd13	PdTb	Qd		
135	Pd14	PdTb	Rd		
136	Pd15	PdTb	WeTa		
137	Pd16	PdTb	Z		
138	Pd17	PdTbTa			
139	Pd18	PdTbTa	CeTa		
140	Pd19	PdTbTa	ChdTbTa		
141	Pd20	PdTbTa	PeTa		
142	Pd21	PdTbTa	Qc	Z	
143	Pd22	PdTbTa	Rde		
144	Pe1	PeTb			
145	Pe2	PeTb	Lld		
146	Pe3	PeTb	Lvd		
147	Pe4	PeTb	PdTb		
148	Pe5	PeTb	PdTb	Lvd	
149	Pe6	PeTb	PdTb	Rde	
150	Pe7	PeTb	Re		
151	Pe8	PeTb	Tve	PdTb	
152	Pe9	PeTbTa	Lld		
153	Pe10	PeTbTa	Tve		
154	Pe11	PeTbTa	Ws	S	
155	Pe12	PeTa	CeTa		
156	Pe13	PeTa	FeTa		
157	Pe14	PeTa	PdTbTa		
158	Pe15	PeTa	PpdTb	CdeTa	
159	Ppd1	PpdTb	FdTb		
160	Ppd2	PpdTb	FdTb	CdTbTa	
161	Ppd3	PpdTb	Id	Lld	
162	Ppd4	PpdTb	Lad		
163	Ppd5	PpdTb	Rd	Id	
164	Ppe1	PpeTb			
165	Ppe2	PpeTb	Re		
166	Ppe3	PpeTb	Ws	FeTb	
167	Ppe4	PpeTa			
168	Q1	Qd			
169	Q2	Qd	Gd		

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
170	Q3	Qd	Id		
171	Q4	Qd	Lld		
172	Q5	Qd	Lvd		
173	Q6	Qd	Lrde		
174	Q7	Qd	PdTb	Lld	
175	Q8	Qd	PdTb	Z	
176	Q9	Qd	PeTb		
177	Q10	Qd	PpdTb		
178	Q11	Qd	Rd		
179	Q12	Qd	Z		
180	Qc1	Qc			
181	Qc2	Qc	Sm	Ode	
182	Qc3	Qc	Z	Gd	
183	Qc4	Qc	Z	Od	
184	Qg1	Qgd	FdTb		
185	Qg2	Qgd	FdTb	Z	
186	Qg3	Qgd	Z		
187	Rd1	Rd			
188	Rd2	Rd	CdTb		
189	Rd3	Rd	Lld		
190	Rd4	Rd	Lvd		
191	Rd5	Rd	PdTb		
192	Rd6	Rd	Qd		
193	Rde1	Rde			
194	Rde2	Rde	CdeTbTa		
195	Rde3	Rde	Ede	Pbde	
196	Rde4	Rde	PdTb	PeTb	
197	Re1	Re			
198	Re2	Re	B	V	
199	Re3	Re	Ee		
200	Re4	Re	Lre	V	
201	Re5	Re	N	S	
202	Re6	Re	PeTb		
203	Re7	Re	PeTbTa		
204	Re8	Re	Tre	Bv	
205	Re9	Re	Ws	S	
206	Rh1	Rhd	ChdTb		
207	Rh2	Rhd	Rd		
208	Rz1	Rz	Re		
209	Rz2	Rz	V		
210	S1	S	Re		
211	S2	S	Ws		
212	S3	S	Ws	Fi	
213	S4	S	Ws	Re	
214	Tbd	Tbd	ChdTb	Lbd	

ID	MAPUNIT	COMP1	COMP2	COMP3	COMP4
215	Tbde	Tbde	Rde		
216	Trd	Trd	CdeTbTa		
217	Trde	Trde	Rde		
218	Tre1	Tre	B	Wm	
219	Tre2	Tre	Lrde		
220	Tre3	Tre	Lre		
221	Tre4	Tre	Re	Bv	
222	Tvde1	Tvde	Lvd		
223	Tvde2	Tvde	PdTb		
224	Tve1	Tve	CdeTb	Rde	
225	Tve2	Tve	Lve	PeTb	CeTbTa
226	Tve3	Tve	PeTb		
227	Tve4	Tve	PeTb	Bv	
228	Tve5	Tve	PeTb	Lld	
229	Tve6	Tve	PeTb	PdTb	
230	V1	V			
231	V2	V	CeTa		
232	V3	V	PdTa		
233	V4	V	Re	N	
234	V5	V	S		
235	Wde	WdeTb	PdTb	Gd	
236	We1	WeTa	Ge	Ae	
237	We2	WeTa	Ws		
238	We3	WeTa	Ws	PdTb	
239	Wm	Wm	Wsm		
240	Ws1	Ws	Qgd	Ae	
241	Ws2	Ws	Re		
242	Ws3	Ws	S		
243	Ws4	Ws	S	PpdTb	
244	Ws5	Ws	S	Re	
245	Z1	Z	FdTb		
246	Z2	Z	Hc		
247	Z3	Z	Qc		
248	Z4	Z	Qgd		
249	Water				

Woods Hole Composite Soil Definition Table

CODE	CODE VALUE	DESCRIPTION
D	Y	Base saturation at pH 7.0: < 50%
D	N	Soil name does not contain Dystrophic
E	Y	Base saturation at pH 7.0: >= 50%
E	N	Soil name does not contain Eutrophic
Ta	Y	High activity clay: CEC at pH 7.0: 24 meq/100g of clay minus the contribution from carbon
Ta	N	Soil name does not contain Ta
Tb	Y	Low activity clay: CEC at pH 7.0: < 24 meq/100g of clay minus the contribution from carbon
Tb	N	Soil name does not contain Tb

CODE	COMPOSITION	COMPOSITE DEFINTIONS			
		D	E	Ta	Tb
Ade	Eutrophic and Dystrophic alluvial soils	Y	Y	N	N
Gd	Dystrophic gley soils	Y	N	N	N
CeTbTa	Eutrophic Cambisols Tb and Ta	N	Y	Y	Y
Ws	Solodic Planosol	N	N	N	N
Ae	Eutrophic alluvial soils	N	Y	N	N
B	Brunizem	N	N	N	N
Ge	Eutrophic gley soils	N	Y	N	N
S	Solodised Solonetz	N	N	N	N
V	Vertisol	N	N	N	N
Bv	Red Brunizem	N	N	N	N
CdTb	Dystrophic Cambisol Tb	Y	N	N	Y
CdTbTa	Dystrophic Cambisol Tb and Ta	Y	N	Y	Y
CdeTbTa	Dystrophic and Eutrophic Cambisol Tb and Ta	Y	Y	Y	Y
CeTb	Eutrophic Cambisol Tb	N	Y	N	Y
CeTa	Eutrophic Cambisol Ta	N	Y	Y	N
CHdTb	Dystrophic humic Cambisol Tb	Y	N	N	Y
ChdTb	Dystrophic humic Cambisol Tb	Y	N	N	Y
ChdTbTa	Dystrophic humic Cambisol Tb and Ta	Y	N	Y	Y
Ed	Dystrophic Regosol	Y	N	N	N
Ede	Dystrophic and eutrophic Regosol	Y	Y	N	N
Ee	Eutrophic Regosol	N	Y	N	N
FdTb	Dystrophic, hydromorphic laterite Tb	Y	N	N	Y

CODE	COMPOSITION	COMPOSITE DEFINTIONS			
		D	E	Ta	Tb
FdeTa	Eutrophic and dystrophic hydromorphic laterite Ta	Y	Y	Y	N
FeTbTa	Eutrophic hydromorphic laterite Tb and Ta	N	Y	Y	N
Fi	Indiscriminate hydromorphic laterite	N	N	N	N
Gde	Dystrophic and eutrophic gley soils	Y	Y	N	N
H	Solonchak	N	N	N	N
Hc	Indiscriminate coastal saline soils	N	N	N	N
Id	Dystrophic undivided concretionary soils	Y	N	N	N
Ide	Dystrophic and eutrophic undivided concretionary soils	Y	Y	N	N
Lad	Dystrophic yellow Latosol	Y	N	N	N
Lbd	Dystrophic brown Latosol	Y	N	N	N
Lhd	Dystrophic humic Latosol	Y	N	N	N
Lld	Dystrophic red-yellow Latosol	Y	N	N	N
Llde	Dystrophic and eutrophic red-yellow Latosol	Y	Y	N	N
Lrd	Dystrophic purple Latosol	Y	N	N	N
Lrde	Dystrophic and eutrophic purple Latosol	Y	Y	N	N
Lvd	Dystrophic dark red Latosol	Y	N	N	N
Lvde	Dystrophic and eutrophic dark red Latosol	Y	Y	N	N
Lve	Eutrophic dark red Latosol	N	Y	N	N
N	Non-calcic brown earth	N	N	N	N
Pbd	Dystrophic brown-grey Podzol	Y	N	N	N
Pbe	Eutrophic brown-grey Podzol	N	Y	N	N
PdTb	Dystrophic red-yello Podzol Tb	Y	N	N	Y
PdTbTa	Dystrophic red-yello Podzol Tb and Ta	Y	N	Y	Y
PeTb	Eutrophic red-yello Podzol Tb	N	Y	N	Y
PeTbTa	Eutrophic red-yello Podzol Tb and Ta	N	Y	Y	Y
PeTa	Eutrophic red-yellow Podzol Ta	N	Y	Y	N
PpdTb	Dystrophic plinthic Podzol Tb	Y	N	N	Y
PpeTb	Eutrophic plinthic Podzol Tb	N	Y	N	Y
PpeTa	Eutrophic plinthic Podzol Ta	N	Y	Y	N
Qd	Dystrophic quartzite sands	Y	N	N	N
Qc	Marine quartzite sands	N	N	N	N
Qgd	Dystrophic hydromorphic quartzite	Y	N	N	N
Rd	Dystrophic litholic soils	Y	N	N	N
Rde	Dystrophic and eutrophic litholic soils	Y	Y	N	N
Re	Eutrophic litholic soils	N	Y	N	N
Rhd	Dystrophic humic litholic soils	Y	N	N	N
Rz	Rendzina	N	N	N	N
Tbd	Dystrophic, structured brown earths	Y	N	N	N
Tbde	Dystrophic and eutrophic structured brown earths	Y	Y	N	N
Trd	Dystrophic structured terra roxa	Y	N	N	N
Trde	Dystrophic and eutrophic structured terra roxa	Y	Y	N	N
Tre	Eutrophic structured terra roxa	N	Y	N	N
Tvde	Dystrophic and eutrophic similar structured terra roxa	Y	Y	N	N
Tve	Eutrophic similar structured terra roxa	N	Y	N	N
WdeTb	Dystrophic and eutrophic Planosol Tb	Y	Y	N	Y
WeTa	Eutrophic Planosol Ta	N	Y	Y	N
Wm	Mollic Planosol	N	N	N	N

CODE	COMPOSITION	COMPOSITE DEFINTIONS			
		D	E	Ta	Tb
Z	Podzol	N	N	N	N
Wsm	Mollic, soldolic Planosol	N	N	N	N
Rd	Dystrophic litholic soils	N	N	N	N
Lle	Eutrophic red-yellow Latosol	N	Y	N	N
FdTa	Dystrophic hydromorphic laterite Ta	Y	N	Y	N
PpdTbTa	Dystrophic plinthic Podzol Tb and Ta	Y	N	Y	Y
Gi	Indiscriminate gley soils	N	N	N	N
Wi	Planosols INDISCRIMINADOS	N	N	N	N
FeTa	Eutrophic hydromorphic laterite Ta	N	Y	Y	N
Sm	Mollic solodised Solonetz	N	N	N	N
Lre	Eutrophic purple Latosol	N	Y	N	N
CdeTb	Dystrophic and eutrophic Cambisol Tb	Y	Y	N	Y
PdTa	Dystrophic red-yellow Podzol Ta	Y	N	Y	N
PhdTa	Rubrozem	N	N	N	N
Ai	Indiscriminate alluvial soils	N	N	N	N
Od	Dystrophic organic soils	Y	N	N	N
CdeTa	Dystrophic and eutrophic Cambisol Ta	Y	Y	Y	N
FeTb	Eutrophic hydromorphic laterite Tb	N	Y	N	Y
Ode	Eutrophic and dystrophic organic soils	N	N	N	N
Pbde	Dystrophic and eutrophic brown-grey Podzol	Y	Y	N	N

Special Circumstances:

"The information contained in the maps are highly generalized. The scale is very small and there is not soil uniformity in large expanses. The map units are predominantly associations of several soil types; of these only the principal ones are specified within each mapunit. The naming of each map unit is given according to the areal importance of those soil types that are contained in each association. Soil types with little areal importance are not listed. The composition of the map units is not entirely consistent across the full range of the map, nor is the precision of the map unit boundaries uniform."

References:

The original map was prepared by: Ministério da Agricultura, Instituto Brasileiro de Desenvolvimento Florestal, Secretária de Planejamento e Coordenação da Presidência da Republica, Fundação Instituto Brasileiro de Geografia e Estatística - IBGE Coordinated and planned by M.N. Camargo and executed together with J. Olmos I.L., F. Palmieri, T.E. Rodrigues, P.K.T. Jacomine, E.P. Mothci, R.O. Potter, A.P. de Carvalho, M.J. Rauen, H.G. dos Santos, S.C.P. Pessoa, J.A.M. do Amaral.

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