

San Miguel Dune Sheet, California

UTM Sector and Datum (xx/yr), Northing, Easting, Estimated Error (EPE +-m), DEM Altitude (Alt m MSL).

Exposure Type: Active (AC), Trench (TR), Auger (AU), Road Cut (RC), Creek Cut (CC), Sea Cliff (SC), Slope (SL).

Units: Age: Tertiary (T), Pleistocene (P), Holocene (H), Wave-cut Platform (W); Parent Material; Soil Horizon

Parent Material: Eolian Dune (D), Loess (L), Colluvium (U), Peat (P), Alluvial/Fluvial (V), Lagoonal/Estuary (N),

Beach Shoreface (S), Basal Conglomerate (M).

Note: Loess (L) is designated where it overlies bedrock, colluvium, or pre-existing Bw/Bt horizons.

Soil Horizon: Organic (A), Leached (E), Accumulation (B), Fe+3 Accumulation (Bw),

Incipient Clay Accumulation (Btj), Clay Accumulation (Bt), Humate Accumulation (Bh),

Calcrete (Bk), Silcrete (Bq), Reduced Glade Layer (Bg), Subsoil Calcrete (K),

Dune Parent (C), Oxidized Parent (Cox).

Subsurface depth (cm); Dominant Grain Size: Silt, Sand, Pebbles, Cobbles (default is sand)

Sand sizes (Coarse U/L, Medium U/L, Fine U/L, VeryFine U/L)

Bedding: Cross Beds (XB,dipxx), Planar Beds (PB), Fluidization (FL), Heavy Mineral Laminae (HM)

Munsel Maximum Color (field condition: moist)

Penetrometer: (P. kg/square cm) unconfined compressive strength.

Structure: loose, very weak blocky, weak blocky, strong blocky, columnar/prismatic.

Diagenesis: Fe-ortstein, Fe-humate, allophane, gibbsite, calcrete, silcrete

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM1	S10/1983	3771880	742290	10	67	7/17/01	SL

Site Notes: This site is on a thin Holocene dune ramp.

Marine terraces are apparent at +2-3 m MSL, 5-10 m MSL, 50?m MSL, and 140m? MSL.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-20	ML-Shell				0.5 Loose	
PDC	20-100					2.5 Very Weak B.	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM2	S10/1983	3771510	741640	4	12	7/1/17	SL

Site Notes:

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-300	Shell				Loose	
PDBtj	300-400			7.5yr3/3			
PDBw	400-450						
PDBtj	450-550			7.5yr5/4			
PDBw	550-750						
PDBk	750-800					Columnar	
PDCox	800-1100						
PDBk	1100-1250						
T	1250-2050	SS turbidite					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM3	S10/83	3771300	741270	9	8	7/17/01	SC

Site Notes: This section is located about 60 m west of entrance to Yardang Canyon (TL sample 420 cm depth).

The top of the measured section is set at the caliche layer (below the Simonton sedimentary complex).

The wave cut platform (580 cm depth) is 8 m above sea level.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDBk	0-40					4.5 Weak Blocky	
PDC	40-470		XBdipSE			2.5 Very Weak B.	
PDBk	470-473		Truncated			4 Columnar	
PDC	473-490	MU				3	
PDBk	490-500		Truncated	5yr5/4		4.5	
PDS	500-530	Sand/Gravel	Truncated			4.5	
PDM	530-579						
PDW	579-580	Cobbles				4.5	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM4	S10/83	3770820	741060		6	54	7/19/01 SL
Site Notes: This site is on the east side of Range Pole Canyon. Simontol paleosol (500-530 cm silty).							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-300			5yr6/1		2	Very Weak B.
HDBw	300-320	Shell		5yr6/2		3.5	Very Weak B.
HDC	320-500	FU		5yr6/1		1.25	Very Weak B.
LBw	500-530	VFL		7.5yr4/4		2	Very Weak B.
PDBw	530-548					4.5	Weak Blocky
PDBk	548-590			2.5y8/2		4.5	Columnar caliche
PDC	590-980	FU				1.25	
PDBk	980-998		Truncated	2.5y8/2		3.5	caliche
PDC	998-1304	FU					
PDBw	1304-1310						
PDBk	1310-1316						
PDC	1316-1550						
PDBk	1550-1598		Truncated				caliche
PDC	1598-1790						
PDBw	1790-1796			7.5yr5/3			
PDBk	1796-1802						
PDC	1802-2390						
PDBk	2390-2402						caliche
PUBk	2402-2414	Siltstone frag		5yr5/4			
PUBk	2414-2426						caliche
PDC	2426-2690						
T	2690-2720	SS turbidites					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM5	S10/83	3770430	737810		15	57 7/19/01	SL
Site Notes: This site is in a gully cut.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDC	0-100						
PDBk	100-120						
PDC	120-200						
PDBk	200-210						
PDC	210-350						
PDBk	350-380						
PDC	380-490						
PDBk	490-500						
PUBw	500-530						
PUC	530-600						
PW	600-605						
T	605-620						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM6	S10/83	3770410	744470		10	11 7/16/01	AC
Site Notes: Foredune backed up against cliff.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-300	ML				0.5 Loose	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM7	S10/83	3770450	745300		10	24 7/16/01	SL
Site Notes: Wave cut face of a dune-sand debris/avalanche fan with remobilized midden shells and caliche blocks.							

Units HUC	Depth cm 0-300	Grain Size ML	Bedding	Color	P.kg/cm ²	Structure 1.5 Loose	
Dune Sheet SANM13	Zone/NAD S10/83	UTM-N 3770410	UTM-E 745200	EPE (m) 10	Alt (m) 40	Date 7/16/01	Exposure SL
Site Notes: Mid-slope site includes a scattered midden on a weak HDBw which overlies a LBw (Simonten Soil?).							
Units HDBw	Depth cm 0-2	Grain Size Shells	Bedding	Color	P.kg/cm ²	Structure 1 Loose	Diagenesis
HDCox	2-50						
LBw	50-70	VFL		7.5yr4/1		4 Very Weak B.	
PDCox	70-110			2.5y7/4			
Dune Sheet SANM9	Zone/NAD S10/83	UTM-N 3770360	UTM-E 745240	EPE (m) 10	Alt (m) 53	Date 7/16/01	Exposure SL
Site Notes: Site is on a Holocene dune ramp (caliche colluvium and shells fragments) in failing 30 degree slope. Dune ramp is composed of mixed Holocene and late-Pleistocene (caliche blocks) dune slump materials.							
Units HD/UCox	Depth cm 0-100	Grain Size	Bedding dip-slope shear beds	Color	P.kg/cm ²	Structure 1 Loose	
Dune Sheet SANM10	Zone/NAD S10/83	UTM-N 3770340	UTM-E 745240	EPE (m) 10	Alt (m) 57	Date 7/16/01	Exposure SL
Site Notes: This site contains a dark soil (Bw/k) on a Pleistocene dunal-caliche colluvium under Holocene dune drift. Widespread paleosol with silt (Simonten soil?).							
Units HD	Depth cm 0-10	Grain Size ML	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
PDBw	10-40	VFL				4 Very Weak B.	
PDCox	40-100	MU				Very Weak B.	
Dune Sheet SANM11	Zone/NAD S10/83	UTM-N 3770290	UTM-E 745240	EPE (m) 10	Alt (m) 80	Date 7/16/01	Exposure SL
Site Notes: This site contains a weakly cemented (caliche) dunal colluvium.							
Units HU/Dcox	Depth cm 0-50	Grain Size FU	Bedding	Color	P.kg/cm ²	Structure 2.5 Very Weak B.	Diagenesis
Dune Sheet SANM12	Zone/NAD S10/83	UTM-N 3770250	UTM-E 745340	EPE (m) 11	Alt (m) 98	Date 7/16/01	Exposure SL
Site Notes: This site is located (North) downslope of the Cuyler H. ridge rim midden site.							
Units HD	Depth cm 0-25	Grain Size	Bedding	Color	P.kg/cm ²	Structure 1 Loose	Diagenesis
LBw	25-30					3 Weak Blocky	
PDBk	30-40			7.5yr5/2		4.5 Columnar	caliche
PDCox	40-80			10yr6/4			
Dune Sheet SANM13	Zone/NAD S10/83	UTM-N 3770210	UTM-E 745200	EPE (m) 10	Alt (m) 140	Date 7/16/01	Exposure SL
Site Notes: This site is on a slope at the eastern end of Cuyler Harbor Beach (SW of Prince Island). A midden occurs near the top of the section (955-1000 cm depth), that lies in contact with a caliche soil on Pleistocene dunes that mantle a bench (marine terrace) at 130 m elev.							
Units HD	Depth cm 0-1000	Grain Size FU	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
PDBw	1000-1020						caliche
PDBk	1020-1060	FU					caliche
PDC	1060-1200						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM14	S10/83	3770110	744170		10	113	7/17/01 SL

Site Notes: Late Pleistocene dune ramp profile.

The PDBk (135-150 cm depth) includes caliche forest, trunks (in-situ) and descending caliche root traces.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDA	0-3						
PDBtj	3-90			10yr4/2		4.5 Columnar	caliche
PDBw	90-135			7.5yr5/3		4.5 Weak Blocky	
PDBk	135-150					4.5 Columanr	claiche
PDCox	150-300			10yr7/6		3 Weak Blocky	
PDC	300-700						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM15	S10/83	3769900	744180		12	131	7/18/01 CC

Site Notes: Site is in incised Nidever Canyon (TL Sample at 1300 cm depth).

The canyon exposes the deepest strata of Pleistocene dunes above old wave-cut platform and bedrock.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
LA	0-10	Silt				1.5 Very Weak B.	
LBw	10-30	VFL	Truncated			4.5 Strong Blocky	
PDBw	30-50	VFL				4.5 Strong Blocky	
PDCox	50-150	FU				4.5	Fe-ortstein
PDBk	150-200		Truncated			Columnar	caliche
PDC	200-300	FU					
PDBtj	300-320		Truncated			Columnar	
PDC	320-400						
PDBtj	400-410		Truncated				
PDC	410-610						
PDBtj	610-615		Truncated				
PDBw	615-645						Fe-ortstein
PDC	645-900		F.sets				
PDBk	900-920				4.5		
PDC	920-1070	ML					
PDBw	1070-1090						Fe-ortstein
PDC	1090-1380		F.sets	10yr8/3			
PA	1380-1600	CU/Pebbles					
PM	1600-1650	Cobbles					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM16	S10/83	3769790	738940		4	126	7/19/01 CC

Site Notes: This site is in a gully cut below widespread caliche surface surrounding Dry Lake (SW corner).

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDBk	0-50					4.5	
PDC	50-70					4	
PDBw	70-120					4 Strong Blocky	
PDBtj	120-180					4.5	
PDBkox	180-250					2	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM17	S10/83	3769720	736970		7	22	7/19/01 SL

Site Notes: Near 'Bath Beach' Holocene dune ramp remnant above Simonton soil 250-290 cm depth (remnant).

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-50						
HDBw	50-55						
HDC	55-150						
HDBw	150-155						

HDBk	155-250	
PDBw	250-290	Silt
T	290-295	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM18	S10/83	3769330	736590		7	26 7/19/01	SL

Site Notes: This site contains springs, and Simonton soil? (100-120 cm depth) over PDBk (Caliche).

The Pleistocene dune strata built up against 80 m elev. marine terrace riser.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HD	0-100						
LBw	100-120	Silt				1.5 Very Weak B.	
PDBw	120-150	FU				2.5	
PDBk	150-175					4 Weak Blocky	
PDC	175-375						
PDBk	375-385						caliche
PDC	385-400						
PDBk	400-420						caliche
PDC	420-600						
PDBk	600-610						caliche
PDC	610-900						
PW	900-901						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM19	S10/83	3769230	744550		4	190 7/19/01	SL

Site Notes: This site is in a canyon on the south side of the trail to San Miguel Hill.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
LA	0-10	Silt					
PDBw	10-90	VFL		7.5yr5/6		3.5 Strong Blocky	
PDBk	90-120	FU				4.5	
PDC	120-300		F.sets				
PDBw	300-310						
PDC	310-400						
PDBk	400-450						caliche
PSBtj	450-500	Pebbles		10yr4/4			
PM	500-520	Cobbles					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM20	S10/83	3769150	742300		5	170 7/19/01	SL

Site Notes: This site is near a fenced-off caliche forest preserve.

Southern extent of active parabolics being vegetated over isolated 1-2 m thick Pleistocene sand ridges, with bedrock floors (marine silt stone).

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure
PDBk	0-100					4.5
PDC	100-300	FU				4.5
T	300-325					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM21	S10/83	3769120	736150		6	16 7/19/01	SL

Site Notes: Simonton soil? (PLBw 110-130 cm depth) on caliche above wave cut platform.

Black abalone midden (10 ka) on weak caliche bench above Simonton soil.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDBw	0-5			2.5y5/3		1.5 Very Weak B.	weak caliche
HDC	5-70	ML				2 Very Weak B.	
HDBw	70-110						
LBw	110-130	Silt		10yr4.3		2.5 Very Weak B.	

PDBw	130-150	VFL				Very Weak B.
PDBk	150-180					4.5 Blocky
PM	180-200					
PW	200-201					
T	201-220					

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM22	S10/83	3769100	740120		4	145	7/19/01 CC
Site Notes: This site is in Bight Canyon east end of Cuyler Bight.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDBw	0-30					Weak Blocky	
PDBtj	30-80		Truncated			4.5 Strong Blocky	
PDBw	80-100					Strong Blocky	
PDBtj	100-190		Truncated				

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM23	S10/83	3769080	744890		6	174	7/18/01 SL
Site Notes: This site is near a canyon head of Willow Creek.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDA	0-10						
LBw	Oct-40	Silt		10yr4/3		4.5 Strong Blocky	
PDBw	40-90	FU					
PDC	90-110						
PDBk	110-130						
PDC	130-230						
PDBk	230-240						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM24	S10/83	3768970	743490		6	248	7/19/01 SL
Site Notes: Eastern extent of the historically active NW-SE trending parabolic ridges (remobilized Pleistocene).							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-100						
PDBtj	100-150						
PDBk	150-200						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM25	S10/83	3768870	742980		4	241	7/19/01 CC
Site Notes: This site is in parabolic ridges (on a parabolic limb) exposed in a canyon wall.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
HDC	0-150						
PDBtj	150-210			5yr5/3		4.5 Columnar	caliche
T	210-230						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM26	S10/83	3768720	745850		7	130	7/18/01 CC
Site Notes: This site is in a gully on the south side of track to Cardwell.							
Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm^2	Structure	Diagenesis
PDA	0-5						
PDBtj	5-150			5yr5/1		Weak Blocky	
PDBw	150-210			5yr5/6		Weak Blocky	
PDBk	210-240						
PU	240-350	Pebbles					
T	350-380						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
------------	----------	-------	-------	---------	---------	------	----------

SANM27	SL	3768650	736810	5	78	7/19/01	
--------	----	---------	--------	---	----	---------	--

Site Notes: Pt. Bennett area, Holocene sand spits below (west of) research station ion Pleistocene dune remnants.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
PDBtj	0-30					4.5 Columnar	
PDBk	30-70						
PDBw	70-100						
T	100-130						

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM28	S10/83	3768290	748170	6	48	7/19/01	SL

Site Notes: Caliche in wind tunnel to south beaches, deflation down to caliche.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
PDBk	0-50					4.5 Columnar	

Dune Sheet	Zone/NAD	UTM-N	UTM-E	EPE (m)	Alt (m)	Date	Exposure
SANM29	S10/83	3767990	748580	5	10	7/18/01	SL

Site Notes: Site is in a wind tunnel, virtually no sand accumulation on downwind side towards south beach spit.

Units	Depth cm	Grain Size	Bedding	Color	P.kg/cm ²	Structure	Diagenesis
PDBk	0-50					4.5 Columnar	
PW	50-100	Cobbles					
T	100-120	Monterey Sh.					