BEACH PROFILE ANALYSIS EXERCISE

Introduction

In this exercise you will plot the **November 28, 2000** beach profile and compare it to April 1998 profile measured at the same station (BEG02). The objectives of the exercise are to become familiar with the technique of plotting beach profiles, to recognize the significant features of the beach, and to gain some understanding of how a beach may change through time.

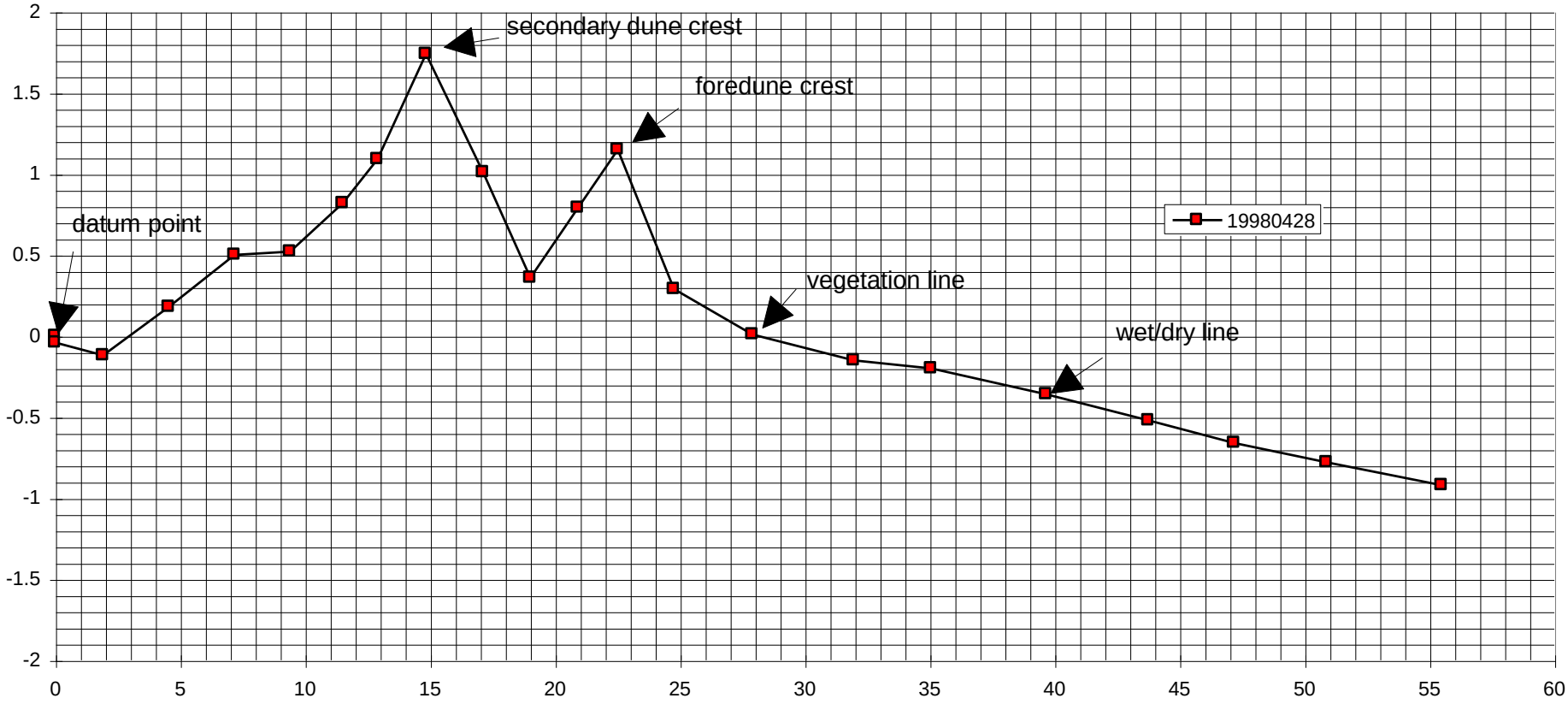
The table below is for you to compile the field data and to get it ready for plotting. To obtain the Horizontal Distance (X) and Height (Z) for the profile you must first compute a running sum of the dx and dz values recorded below. The data was acquired using the Emery profiling technique. Convert centimeters to meters by dividing by 100. A few example points are provided to help you get started. The April 1998 beach profile is already plotted on the graph paper provided. Plot the November 2000 X-Z profile on the same graph so you can compare the profiles. Label the significant profile features using the field notes and answer the questions attached.

Example

	Notes	*dx (cm)*	*dz (cm)*	*X(m)*	*Z (m)*
1	*top of datum point*	*0*	*0*	*0*	*0*
2	*edge of mowed grass*	*185*	*-12*	*1.85*	*-0.12*
3	*100% natural vegetation*	*318*	*44*	*5.03*	*0.32*
4	***continue to end of profile…***	*…*	*…*	*…*	*…*

	Notes – **November 28, 2000**	dx (cm)	dz (cm)	X(m)	Z (m)
1	Top of datum point	0	0		
2	Ground surface above datum point	0	1		
3	Fence	101	-2		
4	100% vegetation	227	40		
5	Dune crest	266	89		
6	Thick vegetation	149	-31		
7		128	-81		
8	60 % vegetation	269	-30		
9	2nd dune crest	313	39		
10		120	-15		
11	70% vegetation	210	-1		
12		228	-27		
13	Main vegetation line	387	-5		
14	Sparse vegetation	354	-11		
15	Small patches of vegetation – 30%	352	1		
16	20% vegetation	422	-10		
17	2nd vegetation line	464	-14		
18		451	-13		
19		476	-13		
20		532	-11		
21		435	-8		
22	Berm crest	276	0		
23		222	-9		
24		339	-9		
25		278	-9		
26		285	-7		
27	Waterline	329	-7		

BEG02


secondary dune crest
foredune crest
datum point
vegetation line
wet/dry line
19980428
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
5
10
15
20
25
30
35
40
45
50
55
60

Inquiry - Beach Profile Analysis

After plotting your data above, answer the following questions:

Profile name _____ Dates of comparison_____

1. Has the beach grown ("accreted") or shrunk ("eroded") during the period(s) of comparison?

_____

2. What part of the beach profile has changed the most? The least?

_____

_____

3. Approximately how far landward or seaward has the beach moved ? To answer this question, pick an arbitrary height (e.g. -1m) or a significant feature (e.g. the seaward most berm crest) and note how this feature has moved horizontally.

_____

_____

4. How has the vegetation line changed?

_____

_____

The grid lines on your graph divide up the X-Z space into rectangles. Assume that the profile has a "thickness" of 1 m. Therefore each small rectangle represents a certain volume of sand (height x horizontal distance x thickness). By carefully counting the rectangles between the two profiles you can estimate the sand volume difference.

5. Dunes: What volume of sand has been gained or lost in the dunes? Which portions of the dunes have changed most? Changed the least?

_____

_____

_____

6. Beach: What volume of sand has been gained or lost on the beach? Which part of the beach shows the most change in sand volume? Changed least?

_____

_____

7. What is the total (dune + beach) sand volume gain/loss during the period? Do you think that this change in sand volume is permanent or temporary? Why?

_____

_____

8. Has the beach and dune changed significantly? If yes, what do you think caused the change?

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