Part B - Plotting Climate Data on Graphs

Activity 1: Temperature Transect

Table 1 (page 7.10) is a summary of average annual climate data for locations in Oregon. The weather station locations are arranged by region in the state. Station name abbreviations are shown in parentheses (e.g. Corvallis station = CVO). The station locations are shown on below.

Plot a bar graph of temperature across Oregon, using data in Table 1. Use the average July High Temperature (degrees F) for the following stations: Newport (ONP), Corvallis (CVO), Santiam Pass (SP), Redmond (RDM), Burns (BNO), and Ontario, (ONO). Use the graph paper on Figure 4: Graph of Temperature Transect Across Oregon (page 7.11). Plot a vertical bar to the temperature shown on the Y-axis at the appropriate position marked on the X-axis. **Do not have the bars touch one another**; they should be narrow bands of equal width.

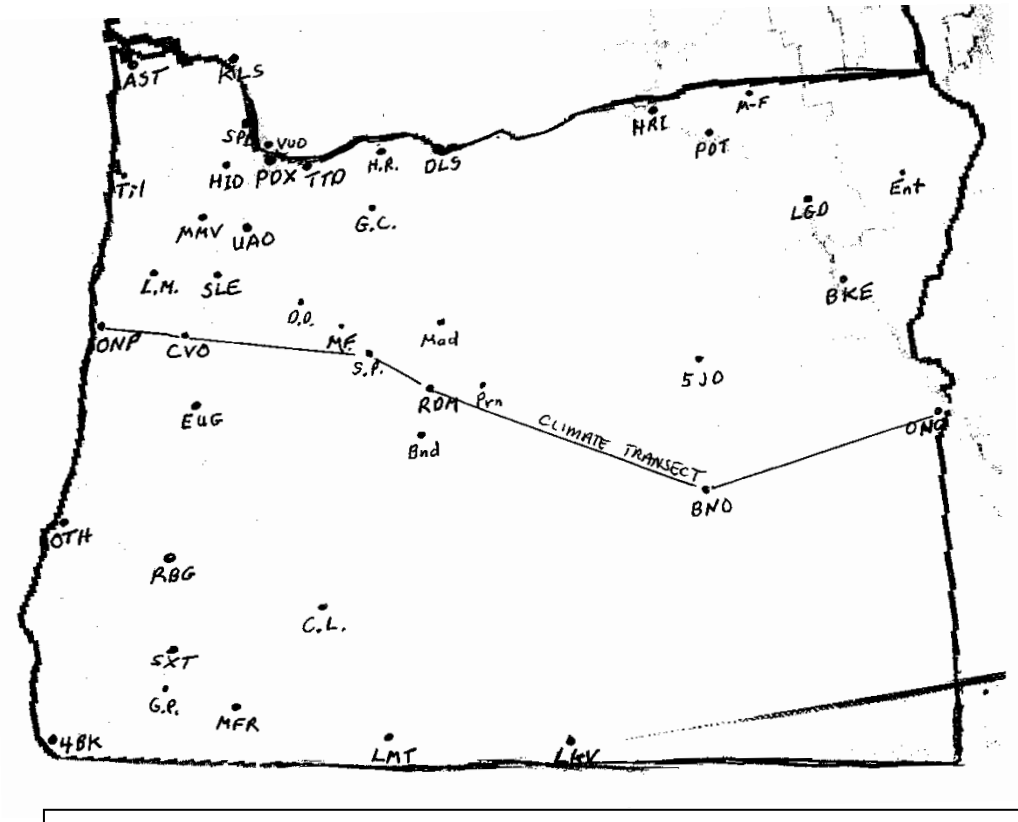

Figure 3: Weather Station Location map for Oregon

OREGON CLIMATE				Mean Annual					
	elev.	Jul Hi	Jan Lo	Temp	Precip	Snow	% Precip		
Location	feet	deg F	deg F	deg F	in.	in.	Nov-Apr	Koeppen's Climate Classification	
Coast									
Astoria (AST)	10	68	36	51	66	5	75%	Csb	*1st Letter*
Tillamook	10	67	36	50	89	3	75%	Cfb	A: Humid tropical
Newport (ONP)	140	65	37	50	72	2	76%	Csb	B: Dry
North Bend (OTH)	10	66	39	53	63	2	81%	Csb	C: Moist with mild winters
Brookings (4BK)	50	68	41	54	75	-	79%	Csb	D: Moist with cold winters
Coast Range									E: Polar climates
Laurel Mountain	3590	64	30	44	112	110	75%	Csb	
Willamette Valley									*2nd Letter*
Portland (PDX)	30	80	34	54	36	5	73%	Csb	S: Semi-arid
Hillsboro (HIO)	160	80	33	52	38	5	76%	Csb	W: Arid
McMinnville (MMV)	150	82	34	52	42	5	78%	Csb	w: dry winters
Salem (SLE)	200	82	33	52	39	6	77%	Csb	s: dry summers
Corvallis (CVO)	190	80	33	52	43	6	78%	Csb	f: Wet all seasons
Eugene (EUG)	360	82	34	53	49	6	79%	Csb	
Southwestern Valleys									*3rd Letter*
Roseburg (RBG)	510	84	35	54	32	4	78%	Csb	h: Hot and dry
Grants Pass	920	90	33	55	31	5	81%	Csa	k: Cool and dry
Medford (MFR)	1300	91	30	54	19	8	75%	Csa	a: Summers long and hot
Klamath Mountains									b: Summers long and cool
Sexton Summit (SXT)	3840	75	31	48	37	97	76%	Csb	c: summers short and cool
Cascades									
Government Camp	3980	68	24	42	86	278	76%	Dsb	
Detroit Dam	1220	77	33	51	87	18	76%	Csb	
Marion Forks	2480	80	26	46	68	112	77%	Csb	
Santiam Pass (SP)	4750	73	21	40	87	437	77%	Dsc	
Crater Lake	6470	68	18	38	66	495	78%	Dsc	
North Central									
Hood River	500	80	28	51	31	36	80%	Csb	
The Dalles (DLS)	100	88	30	55	14	12	79%	Csa	
Hermiston (HRI)	620	88	26	53	9	8	69%	BSk	
Pendleton (PDT)	1480	88	27	52	12	17	67%	BSk	
Milton-Freewater	970	89	28	54	14	12	64%	BSk	
South Central									
Madras	2230	87	23	49	11	12	62%	BSk	
Redmond (RDM)	3060	85	22	47	9	20	60%	BSk	
Prineville	2840	87	22	48	10	12	62%	BSk	
Bend	3660	82	22	46	12	35	67%	BSk	
Klamath Falls (LMT)	4090	85	20	48	13	35	70%	Dsb	
Burns (BNO)	4140	84	13	43	13	42	57%	Dfb	
Lakeview (LKV)	4780	84	19	46	16	65	66%	Dsb	
Northeast									
LaGrande (LGD)	2750	86	24	49	17	30	58%	Dsb	
Enterprise	3880	78	12	41	16	53	50%	Dfb	
John Day (5JO)	3060	88	21	49	13	24	54%	Dfb	
Baker City (BKE)	3370	85	17	46	11	25	57%	Dfb	
Southeast									
Ontario (ONO)	2140	96	19	52	10	18	67%	BSk	

South-Central Oregon data

Table 1: Mean Annual Climate Summary for Oregon

Questions:

1. What do you observe about the July temperature patterns when comparing Newport to Burns and Ontario, Oregon? What physical mechanisms in the atmosphere may account for this relationship?

2. What do you observe about the July temperature patterns when comparing Santiam Pass to Burns and Ontario, Oregon? What physical mechanisms in the atmosphere may account for this relationship?

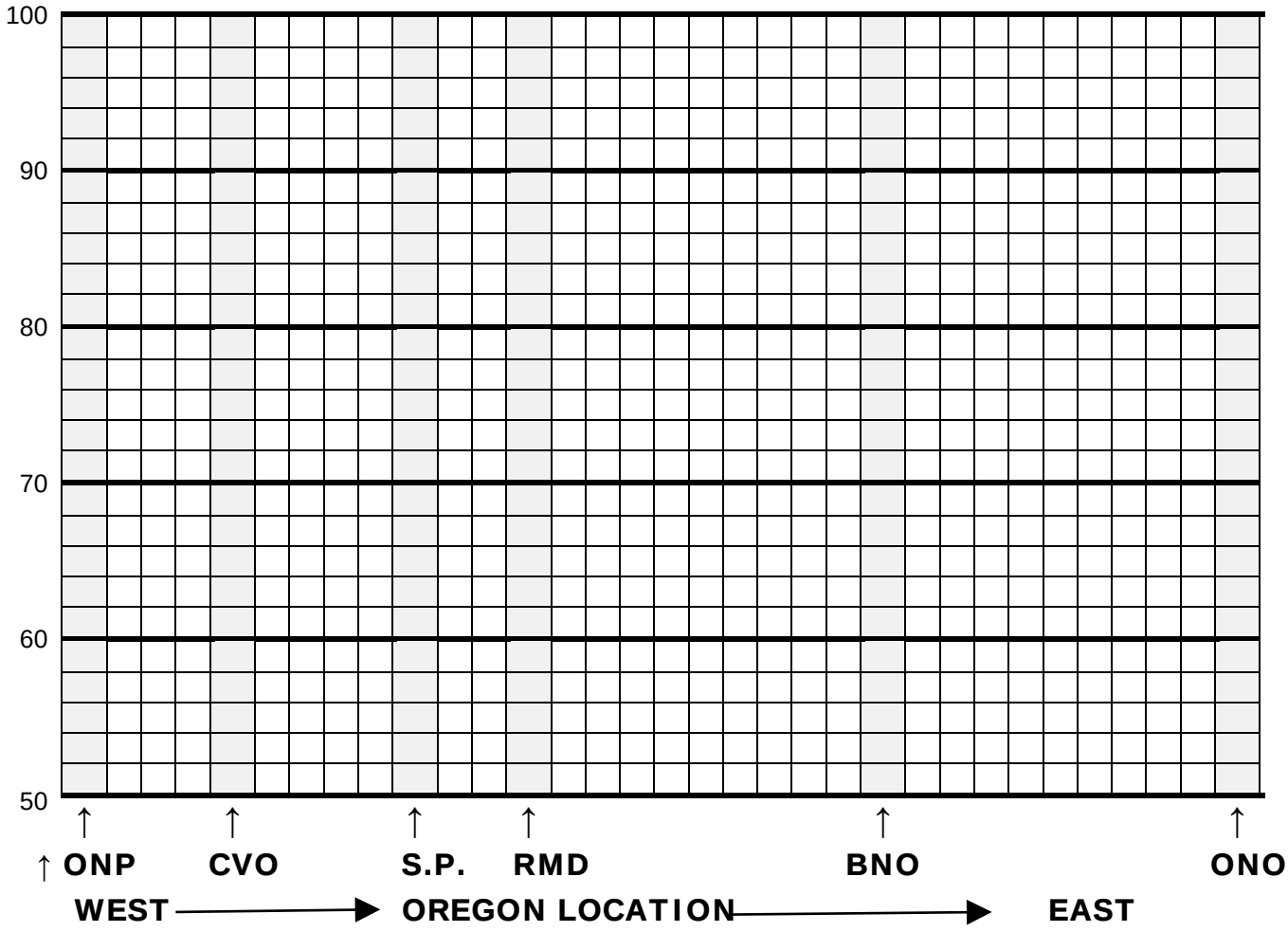

Figure 4: Bar Graph of Temperature Transect Across Oregon

Based on your precipitation data (Part A) and temperature data (Part B), *intuitively decide*, which parts of the state would you classify as "Maritime" and which parts would you classify as "Continental".

Intuitive Answer Here:

Based on your observations and intuitive answer, describe the terms maritime and continental in terms of seasonal temperature and precipitation by filling in the table below. (Use Table 1 to support your descriptions.)

	Maritime	Continental
Summer Temperatures (Hot or Cool?)		
Winter Temperatures (Moderate or Extreme)		
Summer Precipitation (Dry or Wet?)		
Winter Precipitation (Dry or Wet?)		

Activity 2: Focus on South-Central Oregon.

Make some scatter plots to examine the annual climate data in Table 1 for the South Central Oregon section (stations include Madras, Redmond, Prineville, Bend, Klamath Falls, Burns, and Lakeview). Use the data for the listed weather stations to make scatter plots on the graphs provided for:

- Mean Annual Precipitation vs. Elevation (Figure 5a)
- Mean Annual Temperature vs. Elevation (Figure 5b)
- Mean Annual Temperature vs. Mean Annual Precipitation (Figure 5c)

The graphs have already been scaled for you. Plot a point for each south-central weather station on each graph. Label the point with the name of the station. Or you can enter the data in a spreadsheet program, and use its chart function to make the graphs.